SERVICE MANUAL

DIGITAL S CAMCORDER

DY-90U/DY-90E/ DY-90EC/DY-90EC (K)



DIGITALS

The photo shows the DY-90U camcorder with an optional lens and viewfinder.

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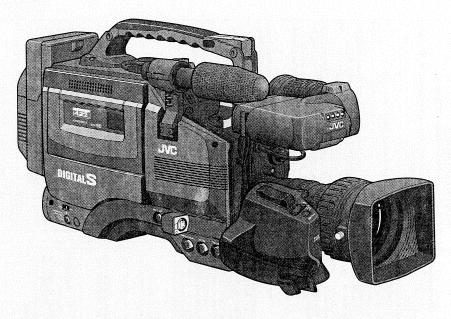
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DIGITAL S CAMCORDER

DY-90 DIGITALS

INSTRUCTIONS



Illust shows the DY-90 camcorder with an optional lens, microphone, mic holder and viewfinder.

This instruction manual was revised in correspondence with service manual of DY-90. To maintain picture and sound quality, use the exclusive head cleaning cassette after every 20 hours of operation.

For details on head cleaning, refer to page 7.

SC96822 : U-ver. SC96823 : E-ver.

INTRODUCTION

CONTROLS, INDICATORS AND

BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

POWER SUPPLY

PREPARATIONS

SHOOTING OPERATION

TIME CODE

SETUP MENU

OTHERS

FEATURES OF THE **CAMERA SECTION**

PLAYBACK MODE

SAFETY PRECAUTIONS

FOR USA AND CANADA



TO REDUCE THE RISK OF ELECTRIC SHOCK, CAUTION:

DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



presence of uninsulated "dangerous voltage" within the The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in

the literature accompanying the appliance.

INFORMATION FOR USA

generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular ristallation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: s equipment has been tested and found to comply with the limits a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
 Connect the equipment into an outlet on a circuit different from
- Consult the dealer or an experienced radio/TV technician for help.

CHANGES OR MODIFICATIONS NOT APPROVED BY JVC COULD VOID USER'S AUTHORITY TO OPERATE THE

THIS DEVICE COMPLES WITH PART 15 OF THE FCC RULES.
CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL.
INTERFERENCE, AND (2) THIS DEVICE MAY NOT CAUSE HARMFUL.
INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY
THER PERENCE RECEIVED, INCLUDING INTERFERENCE
THAT MAY CAUSE UNDESTRED OPERATION.

RENSEIGNEMENT (POUR CANADA) INFORMATION (FOR CANADA)

This Class B digital apparatus meets all requirements of the canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO

This unit should be used with 12V DC only. CAUTION: RAIN OR MOISTURE.

use To prevent electric shocks and fire hazards, do NOT any other power source.

NOTE: The rating plate (serial number plate) is on the top frame.

CAUTION
To prevent electric shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualifiled service personnel.

AVERTISSEMENT: POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAELA L'HUMIDITE OU A LA PLUIE. Ce magnéticoscope ne doit être utilisé que sur du courant

direct en 12V.

Afin d'eviter tout resque d'incendie ou d'électrocution, ne pas utiliser d'autres sources d'alimentation électrique.

REMARQUE

tification (numéro de série) se trouve sur le panneau La plaque d'identific; arrière de l'appareil.

WARNING ON LITHIUM BATTERY

The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat avobe 100°C (21°P) or incinerate properties the Replace battery with Matsushita Electric CR2032, use of another battery may present a risk of fire or explosion.

Dispose of used battery promptly.

Keep away from children.
Do not disassemble and do not dispose of in fire.

Explosionsfara vid felaktigt batteribyte. Arvånd samma batterityp eller en ekvivalent typ som rekommenderas

av apparattiliverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Lithiumbatteri-Eksplosjonsfare. Ved utskifting benyttes kun batteri som ADVARSEL

anbefalt

Brukt batteri returneres apparatieverandøren ADVARSELI

Lithiumbatteri–Eksplosionsfare ved fejlagtig handtering. Udskittning må kun ske med batteri af samme fabrikat og type. Lever det brugte batteri tilbage til leverandøren.

VAPOTUS.
Paristo voi räjättää, jos se ön virheellisesti asennettu.
Vaihda paristo ainoastaan laltevalmistajan suoaittelemaan tyyppiin.
Havitä käytetty paristo valmistajan ohjeiden mukaisesti.

Precautions for 4 channel audio internal editing

Thank you for purchasing the DY-90 DIGITAL S CAMCORDER. (These instructions are for DY-90U)

Use a 4 channel audio compatible Digital S editing unit (BR-D92, etc.) when performing audio insertion editing of a 4 channel audio recorded tape.

When performing audio Insertion editing with a Dig-ital Sediting unit which is not 4 channel audio com-partible (BR-D86, BR-D85 and BR-D756), the record-ed audio signals on the DA3 and DA4 channels are erased.

This unit is a DIGITAL S format camcorder. Video cassette tapes which are not marked DIGITAL S cannot be used with

this unit.

S

MAIN FEATURES

- Compact, lightweight, low-power consumption design.
- High picture quality thanks to the DIGITAL S format. The 4:2:2 component digital processing of the format ensures recording and playback with high picture quality.
 - High-quality digital audio with 16-bit, 48 kHz sampling is provid- High sound quality thanks to the 4-channel PCM audio ed for 4 channels.
- els, VCR's setup menus, hour meter data and a variety of warning indications. It is back-lighted to facilitate viewing under low Concentrated LCD display (with back light)
 The concentrated LCD panel shows the time code and CTL count, tape remaining time, remaining battery power, audio levlight conditions.
- The built-in time code reader/generator can be used to record SMPTE; U-ver/EBU; E-ver time code and user's bits. Time code reader/generator
- This unit can be slave-locked to an external time code genera-The data in the built-in time code generator is output from the Time code input/output connectors for slave lock capability tor which is connected to the time code input. time code output terminal.
- 4-line audio input connectors
- phone, interview microphone and line input. Highly reliable balanced XLR connectors are provided for microphone and line input, for ensuring improved signal-to-noise ratio and enhanced Four lines of audio input are available including camera microsound quality.
- AEF (Automatic Edit Function) enables neat switching between
- Date/time data recording
- Apart from the SMPTE; U-ver/EBU; E-ver time code area, another time code area is provided for the recording of data on the date and time of the day.
- Built-in loudspeaker for audio checking
- The input audio can be monitored in record or EE mode and the The loudspeaker also outputs an alarm tone in case an abnorreproduced audio can be monitored in play mode. mal condition occurs with the unit.
- Rec check function for quick recording review
- Enables searching of the end of the recorded section for the next recording when the recorded tape is loaded. Scene change cueing function

- LOLUX captures scenes never before possible because of low
- lighting conditions. In this mode the COC chip is maximized for low light sensitivity. This Super Sensitivity is ideal for special shooting conditions with almost no lighting. Good color balance is maintained even down to 0.75 k illumination.
 - Multi-zone iris detection circuit ensures optimum iris position even in backlit conditions or when a bright subject moves in a frame. Multi-Zone Auto Iris Detection Circuit Over-under level switchable.
- In addition to center mark on/off capability, safety zone indication for the 16:9 screen format is available. Safety Zone indication
- Indicated area can be selected with 70 80%, 85 95%, OVER 95% or OVER 100%. Zebra pattern video level indication
 - Full Auto Shooting (FAS) function
- ing conditions which varies as you move between indoors and outdoors or between bright and dark locations. It is not necessary The FAS function provides a wide range of compatibility with shootto change the switch and filter positions every time you move.
- Color temperature conversion filters for "3200 K", "5600 K", "5600 K + 1/16 ND" and "3200 K + Efect (cross)".
 - Colour temperature conversion filters for "3200 K", "5600 K", "5600 K + 1/4 ND" and "5600 K + 1/16 ND"
- Flicker bars in the display image of computer monitors are caused by the differing scan rate of the computer monitors. The Variable Scan function can minimize this effect by tunique the camera shurther spead to the precise scan rate of the display screen. The small increments range from 60.5 Hz to 1966.7 Hz (U-ver.) from 50.4 Variable scan.
- the camera section can be registered on the set up box. The data registered on the set up box can be recalled and loaded on the main unit for a quick setup. Data for the recording condition set with the menu switches on Set up box provided

Hz to 1953.1 Hz (E-ver.).

- The following symptoms will appear when the tapes recorded on other units (including DY-90) are recorded or corded on other units (includ played back on this machine.
 - · The transient section between scenes recorded on other
- units may appear disturbed.
 Digital noise appears during playback because of tracking errors.
- Not to record important materials contents for two or three
- minutes in the beginning of tape.

 We cannot assume the liabilities which may derive from the incompanities of normal recording or playback in case of failure with this unit or the video cassette in use.

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	Setting the Date and Time Reproducing the Date and Time

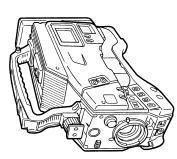
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1-1 System Configuration

The standard configuration of the DY-90 is as shown below

STANDARD CONFIGURATION



Since it has broad directivity, this microphone may pick up surrounding noise such as that of the lens operation, etc. In this case, use an MV-P616 or MV-P612 microphone for the 6 pin microphone connector.



Tripod base

1-2 Precautions for Proper Use

Camcorder (DY-90)

- Supply voltage Make sure that the power is between 11 V and 15 V DC. If the power voltage is too low, abnormal color and increased noise may occur. Do not exceed 15 V DC in any case, or the unit could be damaged
 - Where there are strong electromagnetic waves or magnetism, for example near a radio or TV transmitter, transformer, motor, etc., the picture may contain noise and the colors may be incor-
- used near the camera, the tuner could pick up noise. In such a When a wireless microphone or wireless microphone tuner is
 - Avoid using or placing the unit in places; case, select another channel.
 - subject to extreme heat or cold;
 - with excessive dirt or dust;
- with high humidity or moisture;
- subject to smoke or vapor such as near a cooking stove;
- also do not leave the unit for long hours in a parked car under subject to strong vibrations or on an unstable surface.
- Protect the unit from being splashed with water (especially when shooting in the rain).

direct sunlight or near room heating equipment.

- Protect the unit against penetration of dust when using it in a
- Use the unit in an upright position. If placed on its side, heat release efficiency will deteriorate, adversely affecting the tape place subject to sandy dust.
- (Special care is required to avoid shocks during transportation.) Do not drop or hit it against a hard object

- Remove the video cassette before transporting the unit.
- Do not insert an object other than a video cassette in the cassette insertion slot. Be sure to close the cassette cover when the unit is not to be used for a long period
- To avoid condensation inside the unit, do not transport it between places with a large difference in temperature.
- Do not set the POWER switch to OFF or remove the power cable during recording or playback. Otherwise the tape may be damaged.
- When the unit is not in use, be sure to set the POWER switch to OFF in order to save power consumption
 - Cleaning the body: Wipe body with a dry, soft cloth (such as cheesecloth). When it is extremely dirty, soak the cloth in a so-To prevent deformation of the body, etc. and to avoid operation lution of neutral detergent, wring it out and then wipe.
- hazards, do not allow volatile liquids such as benzine and thinner to touch the body, and do not wipe it with a cloth soaked in If the equipment is soiled with water, oil, solvent, etc., wipe over such a liquid.
 - with soft cloth or cotton first, then clean with gauze, etc. soaked The camera may be unstable in the period immediately after in denatured alcohol.
- even when the unit enters the stop mode. If this happens, remove the cassette tape so that the unit returns to its normal Do not playback an PAL for U-ver, NTSC for E-ver recorded tape, as this may cause noise to the audio and video signals the power is turned on, but this is not a malfunction.

out setup is requested, consult your nearest JVC authorized The MONITOR OUTPUT connector of this unit outputs the video signal with setup at the factory. When the video signal with-T ● Setup level (U-ver. only)

Only the video signal without setup is recorded on the tape.

1. INTRODUCTION

Periodical 1-3 Routine and

hand, when the unit has been used for a long period, the heads, drums and tape transport mechanisms also collect dirt deposited on them. Also, dust which penetrates the inside of the VCR section especially during outdoor use will promote the wear and deterioration To prevent wear and deterioration, clean the mechanical parts using a head cleaning tape as routine maintenance. But cleaning with a head cleaning tape alone is not enough for cleaning the entire tape transport mechanism. it is also recommended to apply periodical As the replacement, adjustment and servicing of parts require advanced skill and equipment, please consult the person in charge of This unit incorporates precision mechanical parts, which will collect dirt, wear out and deteriorate as the unit is used. On the other of mechanical parts by causing poor contact between tape and heads or failing to maintain the video and audio quality at high levels. maintenance (inspection) to prevent troubles which may be caused by the sudden occurrence of failure.

Contents : Check or replace the following mechanical parts ac-Periodical Maintenance

1500H

H 000

Running Time Drum ass'y (including heads) Head cleaner

Tape guides & rollers Fixed heads

Belts & pinch rollers Drive parts

cording to the running time.

Head Cleaning

professional video equipment at your nearest JVC-authorized service agent.

If head cleaning is not performed periodically, a type of mosaic noise called block noise may appear in the picture or sound To maintain high video and audio quality, clean the heads by using the special head cleaning tape about every 20 hours. may be interrupted.





heads) and the head cleaner should A: Clean and check. Replace as required. The maintenance contents may be variable depending on the operating environment and method. Therefore, the above data should be consid-

Replace.

be replaced every 500 hours.

The drum assembly (including O: Clean, check and adjust.

Block Noise

- Use the optional DCL-5 as the head cleaning tape.
- Do not use head cleaning tapes other than specified. Read the instructions of the head cleaning tape for its operating procedure and precautions.

The running time of the VCR section can be confirmed with the hour meter display (which shows the drum running time). For de-

Time management

ered as a reference.

tails, see "HOUR METER DISPLAY" on page 87.

For consultations related to the maintenance programming or cost, please contact the person in charge of professional video equipment at your nearest JVC-authorized service agent.

operation in record-pause mode. At this time, the warning the RF indicator lights up on the display during the back-space When dust is deposited on the video head of the VCR section, finder. During recording, this indicator does not light up and the message "VTR WARNING (HEAD)" is displayed on the view warning message on the viewfinder is not displayed.

- RF indicator BAYE 78 NOF 1909.

0

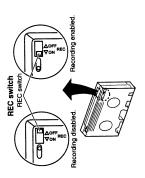
→ See page 2-4 "MAINTENANCE AND INSPECTION OF MAIN PARTS".

1-4 Video Cassette to be Used

- Only cassette bearing the " manut S " logo can be used with
- Video cassettes marked with S-VHS or VHS cannot be used with this unit. If you insert an S-VHS or a VHS cassette in the VCR, it will be ejected automatically.
 - Video cassettes cannot be used upside down.
- · Avoid storing a video cassette with unevenly wound tape, as this may damage the tape. Rewind it to the beginning before placing a cassette into storage.
- comes unable to maintain full performance due to an increase in noise caused by dropouts, etc. Do not continue to use a dirty or damaged tape, as this will reduce the rotary head life. After a video cassette tape has been used repeatedly, it be-
- The video cassette tape marked may S is provided with a REC
- switch for use in preventing accidental erasure.

 Slide the REC switch to OFF to protect the required recording in the tape from being overwritten.

 To record on the tape, slide the REC switch to ON.



1-5 Battery Pack to be Used

This unit can use any of the following battery packs.

• JVC battery pack: NB-G1U

• Flat Shape Type bettery pack

- Anton-Bauer battery pack: Trimpack 13/14 Series, Magnum 13/14 Series,

Compack 13/14 Series. Propack 13/14 Series.

See page 37 for battery holder attaching method

Battery holder: Anton-Bauer model QRQ27

An additional battery holder is required.

directly.

To display the remaining battery power accurately, set "BATT. TYPE SELECT" in setup menu Group 4 according to the type of the battery pack in use. (See page 64)

1-6 Condensation

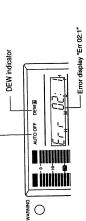
- When the unit which has been cooled down completely in a be cooled into water droplets. This phenomenon is referred to as condensation (dewing). When this occurs in a DY-90, the head drum and tape guides are covered with droplets allowing the warm air may attach to the head drum or tape guides and cold place is carried to a warm place, the moisture contained in the tape to be stuck to them, leading to tape damage.
 - Condensation occurs in the following cases:
 - · When the unit is suddenly moved from a cold place to a warm place.
- When the room heater has just startrectly to cold air from the air condied or when the unit is exposed di-
- When the unit is placed in a very

Video tape

- When condensation occurs with this unit, the DEW on the display lights up, the error code "Err 02:1" appears on the counter display (see page 85).
 - A warning message "VTR WARNING (DEW)" is displayed on

the viewfinder screen. To assist this, leave the unit with the power ON and wait until the error code "Err 02:1" and the DEW indicator disappear from the display.

AUTO OFF indicator



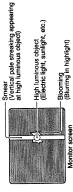
1-7 Camera and Lens

CAMERA

CCD Smear and Blooming

- Due to the physical structure of the CCD in this unit it is possible to induce vertical streaking or smear when shooting an extremely bright light source.
- Another effect is the expansion of light around a bright light or object called Blooming.

Just as you protect your image against lens flare (internal lens reflections); please be careful when shooting a bright light



Gain, Noise

 Higher levels of output gain result in a decrease in the signal to noise ratio, possibly resulting in a noisy picture.

Moire or Aliasing

An Anton-Bauer battery pack cannot be attached to this unit

 Shooting stripes or fine patterns may cause a jagged effect or a Try repositioning the lens zoom to change the frequency of the banding in fine mesh patterns.

High Temperatures

detail information and eliminate the distortions.

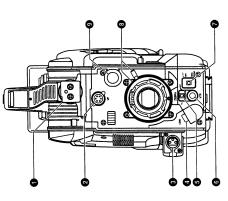
 High temperatures can cause CCD sensor pixels to malfunc-tion with the effect of white dots in the image. This condition could damage the CCD, and certainly raises the "fixed pattern" noise level which CCDs have, thus giving a noisy picture.

1. INTRODUCTION

- UV filter against accidental scratching, touching or dirt. The ex- When the lens is changed, take special care to avoid contaminating the inner lens surface and camera gate/optical block area The camera lens should be protected externally with a Clear or ternal lens cap should be used whenever possible.
 - Do not expose the lens or viewfinder to strong sunlight or place with moisture or dust.
 - Exposure of the lens or viewfinder to strong sunlight or other strong light sources will cause eye injuries. in a strong light source.
- Continued exposure of the lens or viewfinder to sunlight will damage the internal condensing lens, resulting in malfunction and possible fire.

2. CONTROLS, INDICATORS AND CONNECTORS

2-1 Front Section (U ver.)



Mount the VF-P116 or VF P115 viewfinder (optional) on the Wiewfinder mount base, sliding securing ring

base and secure it using the sliding securing ring. See "Attaching the Viewfinder" on page 31

[VF] Vlewfinder connector

Connect to the cable from viewfinder.

This balanced XLR three connector is for microphone level only. A 48 V DC is supplied as the power supply for the microphone (Use only phantom microphone). Connect the JVC MV-P615 DA2 IN (MIC IN + 48 V)] DA2 (Microphone) input connector or other microphone

The audio signal from this connector is recorded on DA2 of the PCM audio channel. It is also recorded on the linear track

When using a microphone other than a Phantom microphone, consult a JVC authorized service agent. of the tape for audio search.

(0)

Function GND 탈 Pin No.

See "Attaching the Optional Microphone" on page 33.

(1) [LENS] Lens control connector

Connect 12-pin lens control cable from lens. Lens connector function

5 IRIS control 11 — — — — — — — — — — — — — — — — — —
3 GND 9 EXTENDER posit 4 Lens AUTO/MANU control 10 ZOOM position

→ See page 3-6 "3.2.8 Service menu". U-10

⑤ [ZEBRA] Switch

brightness corresponding to 70% to 80% video levels on the viewfinder screen. This pattern can be used as a reference for When this switch is ON, a zebra pattern is displayed with a

When adjusting the iris manually, adjust it so that the zebra patterns are displayed in the section which you want to stress manual adjustment of the lens iris. in the object.

 The default value is 70% - 80%. The luminance level can be changed with the ZEBRA setting in the Advanced Menu

See "ZEBRA item" on page 70.

be effected with this button. (It is interlocked with the lens and the VTR trigger button on [O [VTR] VTR trigger button (record start/stop button) With the VCR set in record pause mode, record start/stop can

the side panel.)

D [AUTO WHT./ACCU FOCUS] switch

AUTO WHITE

First position a white object to occupy 80% of the center of the

provide automatic adjustment for white balance. It is not activated in preset, full auto shooting, full-time auto Setting this switch to the upper position ("AUTO WHT.") will

See "White Balance Adjustment" on page 44. white blance and color bar modes.

the lens iris will be forced to open for approximately ten When this switch is set to "ACCU FOCUS" in the lower position, ACCU-FOCUS:

The object depth can be reduced and the lens focusing can be adjusted more accurately.

CAUTION:

As the automatic shutter is activated here, flicker may appear on the screen depending on the lighting conditions (such Operation is not possible in the LoLux mode as a fluorescent lamp, etc.)

D Lens mounting ring/Lens lock lever

To mount lens make sure the lens guide pin fits well, and then twist the ring clockwise until firm. See "Attaching the Zoom Lens (Optional)" on page 31

Hold the lens and use the knob to twist the ring anticlockwise

[FILTER] Color temperature conversion filter control knob

This knob changes the internal filter of color temperature. See "Filter" on page 41.

2-1 Front Section (E-ver.)

2. CONTROLS, INDICATORS AND CONNECTORS

When this switch is ON, a zebra pattern is displayed with a brightness corresponding to 70% to 80% video levels on the viewfinder screen. This pattern can be used as a reference for manual adjustment of the lens iris.

patterns are displayed in the section which you want to stress When adjusting the iris manually, adjust it so that the zebra in the object.

8

 The default value is 70% - 80%. The luminance level can be changed with the ZEBRA setting in the Advanced Menu screen

See "ZEBRA item" on page 70.

[VTR] VTR trigger button (record start/stop button) With the VCR set in record pause mode, record start/stop can be effected with this button.

(It is interlocked with the lens and the VTR trigger button on the side panel.)

[AUTO WHT./ACCU FOCUS] switch

Φ 90

AUTO WHITE:

Setting this switch to the upper position ("AUTO WHT") will It is not activated in preset, full auto shooting, full-time auto First position a white object to occupy 80% of the center of the provide automatic adjustment for white balance white blance and colour bar modes.

Mount the VF-P116 or VF P115 viewfinder (optional) on the

base and secure it using the sliding securing ring.

See "Attaching the Viewfinder" on page 31.

Viewfinder mount base, sliding securing ring

See "White Balance Adjustment" on page 43. ACCU-FOCUS

When this switch is set to "ACCU FOCUS" in the lower position, the lens iris will be forced to open for approximately ten The object depth can be reduced and the lens focusing can seconds

be adjusted more accurately.

This balanced XLR three connector is for microphone level A 48 V DC is supplied as the power supply for the microphone (Use only phantom microphone). Connect the JVC MV-P615

[MIC 2 IN + 48 V] Microphone 2 input connector

Connect to the cable from viewfinder.

[VF] Viewfinder connector

As the automatic shutter is activated here, flicker may appear on the screen depending on the lighting conditions (such CAUTION:

Operation is not possible in the LoLux mode. as a fluorescent lamp, etc.)

When using a microphone with this connector, refer to (6) [MIC1/MIC2] SELECT switch on page 15 and set the switch to

or other microphone.

Company of the com

Function

Pin No.

(0)

GND

Hold the lens and use the knob to twist the ring anticlockwise To mount lens make sure the lens guide pin fits well, and then twist the ring clockwise until firm. to release lens.

[FILTER] Colour temperature conversion filter

See "Attaching the Optional Microphone" on page 33.

Connect 12-pin lens control cable from lens.

Lens connector function

Pin No.

[LENS] Lens control connector

See "Attaching the Zoom Lens (Optional)" on page 31

This knob changes the internal filter of colour temperature. See "Filter" on page 40.

> IRIS position **EXTENDER** position

Function

Pin No.

ZOOM position

5 5

Lens AUTO/MANU control

VCR trigger RET switch Function

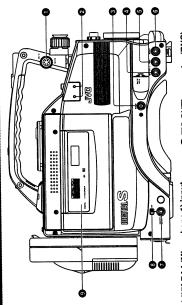
GND

control knob

E-10

2. CONTROLS, INDICATORS AND CONNECTORS

2-2 Left Side Section (Cassette Side) (U-ver.)



● [DA4 IN (MIC 1 IN)] DA4 (Microphone 1) Input

connector (6-pin)

Connect the provided microphone. With the mic holder (optional), the following microphone models

- MV-P616 (mono) can be used.
- MV-P612 (stereo/mono)
- The audio signal from this connector is recorded on DA4 of the PCM audio channel.
- * It is not recorded on the linear track of the tape for audio
 - When using a stereo microphone, the audio signal is only

recorded on the L channel

L (Hot) Pin No. Function 9 V DC Pin No.

Mic holder mounting screw holes

The mic holder KA-A90 (Optional) can be mounted here.

[SET UP] connector

Connect the provided set up box to this connector.

The camera's menu data set with the **@** FILE switch A, B or OFF on page 14 can be read out onto the set up box. Also the camera's menu data stored in the set up box can be recalled and written onto the FILE switch A, B or OFF. For readout from and writing on the set up box, see page 78.

[GEN LOCK IN] connector (BNC)

External reference composite video or black burst video input. This unit cannot be genlocked with the VCR playback signal. See "Connection with a switcher" on page 80.

Note:

When the power is switched ON while external sync signal is input, the screen moves in a vertical direction for a few seconds. This is not a malfunction.

[TC IN] connector (BNC)

Input connector for the SMPTE-standard LTC signal. The built-in time code generator can be slave-locked with the input time For the slave lock of time code, see page 58.

(BITC OUT) connector (BNC)

Output connector for the LTC signal from the built-in time code generator. The time code recorded on the tape is not output in play mode.

MONITOR OUTPUT] connector (BNC)

- Composite video signal output connector.

 Outputs the video signal selected by the (CAM/VTR)
- The signal with setup will be output.
- Setup menu items for camera section, VCR section, time code or date/time data are not output.

[CAM/VTR] Monitor output CAM/VTR switch

This selects the video signal to output to the MONITOR CAM: Regardless of which mode, the EE image from the OUTPUT connector or viewfinder.

VTR: Playback image is output during the playback mode. An EE image is output during other modes than the

camera video signal is output.

*The backspace function during the Record-Pause Mode and the recording check function are also Play Mode

Regardless of the switch setting, playback sound is output during the playback mode and EE sound is output during other modes.

carried out on the playback mode.

Cassette cover

button on the top of the VCR section opens this cover so that a cassette tape can be inserted or removed from the unit. The cover can be locked automatically by pushing and closing it. When the DY-90 is in POWER ON mode, pressing the EJECT

To prevent penetration of foreign objects in the unit, do not leave the unit with the cassette cover open.

2. CONTROLS, INDICATORS AND CONNECTORS

2-2 Left Side Section (Cassette Side) (E-ver.)

000 , () Q

● [MIC 1 IN] Microphone 1 input connector (6-pin)

Connect the provided microphone. With the mic holder (optional), the following microphone models

- MV-P616 (mono) can be used.
- MV-P612 (stereo)
- When using a microphone with this connector, refer to @[MIC1/MIC2] SELECT switch and set the switch to MIC1.
 - See page 15.
- Set the [FRONT MIC1 SELECT] on the SETUP MENU according to the microphone type (monaural or stereo) to be connected. See page 64.

			_	
Function	L (Hot)	L (GND)	R (GND)	
Pin No.	Q	3	F	
Function	R (Hot)	9 V DC	GND	
Pin No.	∢	В	ပ	

To find out to which channel of the tape the audio signal from MIC1 or MIC2 connectors is recorded, see page 64.

Mic holder mounting screw holes

The mic holder KA-A90 (Optional) can be mounted here.

S [SET UP] connector

page 14 can be read out onto the set up box.
Also the camera's menu data stored in the set up box can be recalled and written onto the FILE switch A or B. Connect the provided set up box to this connector. The camera's menu data set with the Ø FILE switch A or B on

For readout from and writing on the set up box, see page 78.

[GEN LOCK IN] connector (BNC)

External reference composite video or black burst video input. This unit cannot be genlocked with the VCR playback signal. See "Connection with a switcher" on page 80.

When the power is switched ON while external sync signal is input, the screen moves in a vertical direction for a few Note:

(B) [TC IN] connector (BNC)

seconds. This is not a malfunction.

Input connector for the EBU-standard LTC signal. The built-in time code generator can be slave-locked with the input time

For the slave lock of time code, see page 58.

(BNC) (BNC)

Output connector for the LTC signal from the built-in time code generator. The time code recorded on the tape is not output in play mode.

Outputs the video signal selected by the @ [CAM/VTR] Composite video signal output connector

[MONITOR OUTPUT] connector (BNC)

Setup menu items for camera section, VCR section, time code or date/lime data are not output.

Make sure that the monitor is terminated with 75 Ω before connecting the MONITOR OUTPUT connector. If it is not

terminated with 75 Ω the video signal will not output when the power is on because of the power saving features equipped with this unit.

⑤ [CAM/VTR] Monitor output CAM/VTR switch

This selects the video signal to output to the MONITOR OUTPUT connector or viewfinder.

CAM: Regardless of which mode, the EE image from the camera video signal is output.

VTR : Playback image is output during the playback mode.

* The backspace function during the Record-Pause Mode and the recording check function are also An EE image is output during other modes than the Play Mode

Regardless of the switch setting, playback sound is output during the playback mode and EE sound is output during other modes.

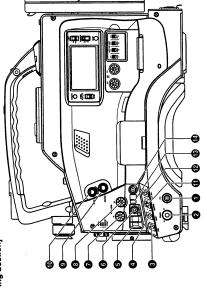
carried out on the playback mode.

Cassette cover

button on the top of the VCR section opens this cover so that a cassette tape can be inserted or removed from the unit. The When the DY-90 is in POWER ON mode, pressing the EJECT cover can be locked automatically by pushing and closing it.

To prevent penetration of foreign objects in the unit, do not leave the unit with the cassette cover open.

[Camera Setting Section]



With the VCR set in record pause mode, record start/stop can [VTR] VTR trigger button (Recording Start/Stop)

(It is interlocked with the lens and the VTR trigger button on be effected with this button. the front sections.)

[POWER] switch

Turn the power ON and OFF with this switch.

With this switch set to ON, the DY-90 status differs depending

on the setting of the OVTR (SAVE/STBY) switch.

(VTR) switch

Select the DY-90 status when the power is turned ON with this

protection mode. When a recordable cassette tape is loaded, pressing the [VTR] button enters the record : Drum rotation stops and the DY-90 enters the tape mode. However in this case, recording will start after a short interval. SAVE

continues to rotate. In this mode, when the [VTR] button is pressed, the DY-90 immediately enters the 90 enters the record-pause mode and the drum STBY: When a recordable cassette tape is loaded, the DYrecord mode.

 The mode selected by this switch is displayed on the status screen in the viewfinder.

[GAIN] switch

Electronically boosts the light sensitivity when there is insufficient illumination on the subject. The boosting level differs depending on the switch position as follows:

H: 18 dB (boosted to approximately 8 times the original) M: 9 dB (boosted to approximately 3 times the original)
 L: 0 dB (no boosting is applied)

The boosting level for each switch position can be changed

with the advanced menu screen. (See page 69.)
The more the boosting level is increased, the more the resulting image will be noisy.

This switch selects the automatic iris adjustment reference G [AUTO IRIS] Auto iris level switch

value according to the condition in which the camera is used. BACK. L : Under back light (Open the iris about 1 step from the standard level.)

NORMAL: Normal condition

SPOT. L : Under spotlight (Close the iris about 1 step from

the standard level.) See page 77.

FULL AUTO] Full auto shooting ON/OFF button and

indicator

 This momentary switch turns this function on and off, with a indicator light

· Full auto shooting combines the auto iris, auto level control and full auto white (FAW) to automatically adjust the video signal level and the white balance to their optimum levels.

The iris is placed in automatic even if the iris mode switch of

the lens is in manual.

The shutter speed will vary continuously to the minimum of The gain will vary continuously to the maximum of +18 dB. 1/200 of a secon

See [Full Auto Shooting (FAS) function] on page 77.

2. CONTROLS, INDICATORS AND CONNECTORS

2-3 Right Side Section (Cont'd) (U-ver.)

D [DA1 AUDIO LEVEL] Control

Adjusts the audio recording level of the [DA1 IN] connector on the rear panel.

: If white balance is performed with the switch in : If white balance is performed with the switch in

There are three white balance modes possible with this switch.

[WHT.BAL] White balance switch

This adjustment is available only when the @ [DA1 AUDIO MODE SELECT] switch on page 15 is set to MANUAL.

[DA2 AUDIO LEVEL] Control

Adjusts the audio recording level of the ([DA2 IN (MIC IN)] connector on the front panel.

This adjustment is available only when the [DA2 AUDIO MODE SELECT] switch on page 15 is set to MANUAL.

SET with the ADVANCED MENU (see page 69). In the FAW mode, video color temperatures are constantly

sampled for automatic adjustment to a proper white balance.

(PRESET) An emergency setting for outdoors with a 5600K FAW (Full-time Auto White) mode can be set to A, B or PRE-

or 5600K+ND filter turret setting.

: A non-erasable white balance setting to 3200K

PRST

•

this position it will be memorised into B. this position it will be memorised into A.

[MONITOR] Audio monitor control

Adjusts the volume of the monitoring loudspeaker and earphone. The audio is muted when this control is set to the minimum position.

Set to an appropriate position depending on the video signal

Switches the gain for the dark section of the image.

(B [BLACK] Black stretch/black compression switch

By stretching the signal only for the dark section, contrast in the dark portion of the image is enhanced.

BLACK STRETCH:

[ALARM] control

from the monitoring loudspeaker or earphone in case of a warning or other abnormal condition occurring with the DY-Turn to control the volume of the alarm tone which is output

Turn this control anticlockwise to reduce the volume. Setting this control to the minimum position mutes the alarm

When an entire image is relatively light and the contrast is low, the gain of the dark section is

Standard mode.

NORMAL

BLACK COMPRESS

compressed to increase the contrast.

(DUTPUT) Color bar/Camera/Auto knee switch

This switch is used to select the output signal. When the video signal from the shooting camera is selected, the auto knee function is available.

: Outputs the color bar signal. In this mode, the auto knee function is not available. Set to this position when adjusting the video monitor or when recording the color bar signal. BARS:

CAM. AUTO KNEE OFF

In this mode, the auto knee function is not available. Outputs the video signal from the shooting camera

shooting mode, the auto level control (ALC) (one of the full auto shooting functions) will be made inactive, so that the

LOLUX mode is given preference (FAW still remains active).

If the unit is placed in the LOLUX mode when it is in full auto

LOLUX operation takes priority over normal gain operation.

in the LOLUX mode.

special applications. This will result in an increase of 33 dB

LOLUX gain gives extremely low light level sensitivity for

This button toggles the LOLUX mode on and off.

(LOLUX] LOLUX on/off button

Outputs the video signal from the shooting camera. In this mode, the auto knee function is available. **AUTO KNEE function**

When shooting a foreground object with a high-brightness background, if the brightness level is set for a foreground human being, etc., the background image will be blurred with white. In such a case, when the auto knee function is used, a clearer background is obtained

It is effective especially in the following cases:

 When shooting a human being in the shade on a fine day When shooting a high-contrast scene

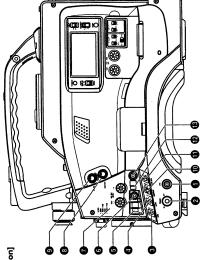
light is shot, the auto knee function may change the bright-ness of the entire image along with the motion of the ob-ject. In this case, set the auto knee function to OFF. If a fast moving high-brightness section like a car in sunU-13

E-13

2. CONTROLS, INDICATORS AND CONNECTORS

2-3 Right Side Section (E-ver.)

[Camera Setting Section]



(VTR) VTR trigger button (Recording Start/Stop)

With the VCR set in record pause mode, record start/stop can It is interlocked with the lens and the VTR trigger button on be effected with this button. the front sections.)

@ [POWER] switch

Turn the power ON and OFF with this switch.

• With this switch set to ON, the DY-90 status differs depending on the setting of the ® VTR (SAVE/STBY) switch.

(VTR) switch

Select the DY-90 status when the power is turned ON with this

protection mode. When a recordable cassette tape is SAVE: Drum rotation stops and the DY-90 enters the tape loaded, pressing the [VTR] button enters the record mode. However in this case, recording will start after

button is pressed, the DY-90 immediately enters the 90 enters the record-pause mode and the drum continues to rotate. In this mode, when the [VTR] : When a recordable cassette tape is loaded, the DYa short interval. record mode. STBY

 The mode selected by this switch is displayed on the status screen in the viewfinder.

[GAIN] switch

Electronically boosts the light sensitivity when there is insufficient illumination on the subject. The boosting level differs H: 18 dB (boosted to approximately 8 times the original) depending on the switch position as follows:

M: 9 dB (boosted to approximately 3 times the original)

L: 0 dB (no boosting is applied)

 The boosting level for each switch position can be changed with the advanced menu screen. (See page 69.)

The more the boosting level is increased, the more the resulting image will be noisy.

[5] [AUTO IRIS] Auto iris level switch

This switch selects the automatic iris adjustment reference BACK. L : Under back light (Open the iris about 1 step from value according to the condition in which the camera is used. the standard level.)

NORMAL: Normal condition

SPOT. L : Under spotlight (Close the iris about 1 step from the standard level.)

See page 77.

[FULL AUTO] Full auto shooting ON/OFF button and indicator

· This momentary switch turns this function on and off, with a

and full auto white (FAW) to automatically adjust the video Full auto shooting combines the auto iris, auto level control indicator light.

The iris is placed in automatic even if the iris mode switch of signal level and the white balance to their optimum levels.

The shutter speed will vary continuously to the minimum of The gain will vary continuously to the maximum of +18 dB. the lens is in manual. 1/200 of a second.

See [Full Auto Shooting (FAS) function] on page 77.

2. CONTROLS, INDICATORS AND CONNECTORS

MIC REC LEVEL] control

Adjust the recording level of the camera's microphone (MIC1 and MIC2) with this control.

This control is valid only when the [MIC SELECT] switch is set to "MANUAL".

(Mono) 2/1L control

Adjusts the recording level of the microphones:

Microphone of MIC 2 connector.

 Stereo microphone L channel of MIC 1 connector. Monaural microphone of MIC 1 connector

Adjusts the recording level of stereo microphone R channel 1R control of MIC1.

(B [MONITOR] Audio monitor control

Adjusts the volume of the monitoring loudspeaker and earphone. The audio is muted when this control is set to the min-

@ [ALARM] control

warning or other abnormal condition occurring with the DY-90. Turn this control anticlockwise to reduce the volume. Setting this control to the minimum position mutes the alarm from the monitoring loudspeaker or earphone in case of a Turn to control the volume of the alarm tone which is output

[OUTPUT] Colour bar/Camera/Auto knee switch

This switch is used to select the output signal. When the video signal from the shooting camera is selected, the auto knee function is available.

BARS: Outputs the colour bar signal. In this mode, the auto knee function is not available. Set to this position when adjusting the video monitor or when recording the colour bar signal.

CAM. AUTO KNEE OFF

Outputs the video signal from the shooting camera. In this mode, the auto knee function is not available. CAM. AUTO KNEE ON:

Outputs the video signal from the shooting camera. In this mode, the auto knee function is available.

background, if the brightness level is set for a foreground human When shooting a foreground object with a high-brightness being, etc., the background image will be blurred with white. In such a case, when the auto knee function is used, a cleare **AUTO KNEE function**

It is effective especially in the following cases:

When shooting a human being in the shade on a fine day background is obtained.

When shooting a high-contrast scene

of the entire image along with the motion of the object. In If a fast moving high-brightness section like a car in sunlight is shot, the auto knee function may change the brightness this case, set the auto knee function to OFF.

2-3 Right Side Section (Cont'd) (E-ver.)

(IWHT.BAL) White balance switch

: If white balance is performed with the switch in There are three white balance modes possible with this switch this position it will be memorised into A. : If white balance is performed with the switch in

8

(PRESET) An emergency setting for outdoors with a 5600K : A non-erasable white balance setting to 3200K. this position it will be memorised into B. PRST

 FAW (Full-time Auto White) mode can be set to A, B or PRE-In the FAW mode, video colour temperatures are constantly SET with the ADVANCED MENU (see page 69). or 5600K+ND filter turret setting.

sampled for automatic adjustment to a proper white balance.

[BLACK] Black stretch/black compression switch

Set to an appropriate position depending on the video signal Switches the gain for the dark section of the image.

By stretching the signal only for the dark section, BLACK STRETCH:

When an entire image is relatively light and the contrast is low, the gain of the dark section is contrast in the dark portion of the image is enhanced. Standard mode. BLACK COMPRESS: NORMAL

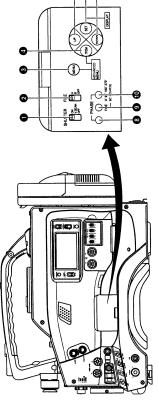
■ [LOLUX] LOLUX on/off button

compressed to increase the contrast.

This button toggles the LOLUX mode on and off.

 LOLUX gain gives extremely low light level sensitivity for special applications. This will result in an increase of 33 dB in the LOLUX mode.

If the unit is placed in the LOLUX mode when it is in full auto shooting mode, the auto level control (ALC) (one of the full auto shooting functions) will be made inactive, so that the LOLUX mode is given preference (FAW still remains active). LOLUX operation takes priority over normal gain operation.



SHUTTER] Shutter switch

: This mode allows setting of different shutter Š

To change shutter speed push the UP 6 or DOWN

Duttons.

V.SCAN: This mode helps adjust the shutter speed to match the scan rate of computer monitor.

then use the UP or DOWN buttons to adjust the Place the switch down in the V.SCAN position and

: This mode corresponds to the standard 1/60. 유

 The shutter speed is displayed in the viewfinder. (See page 29.)

■ WHEN TO USE

A shutter speed of 1/50th second is too slow to prevent blurring

This gives a smooth and natural effect when watching motion normally, but in certain applications the video is to be displayed in slow motion or as a freeze. The blurring in this case reduces from normal actions when a subject is moving. the possible sharpness of the image.

As one increases the shutter speed the amount of light collected is less and less, so consideration should be given to the effects of openning the iris and increasing gain. Opening the iris reduces depth of field and causes foreground

and background objects to go out of focus. This is a useful artistic technique.

[FILE] File switch

This switch registers the set values at the MENU screen for camera section and reads the registered FILE.

- Shooting can be carried out with the set values Register to the FILE A. (in registration)
 - Shooting can be carried out with the set values registered to the FILE A. (in reading) : Register to the FILE B. (in registration) registered to the FILE B. (in reading)
- Shooting can be carried out with the set values : Register to the FILE OFF (in registration) 뚬

registered to the FILE OFF. (in reading)

The items in the ADVANCED MENU require the registration operation. (Switch position: During A or B) See page 68.

4

[MENU] button

[ITEM] button

([UP] button

@ [SET/DISPLAY] button

When this button is pressed in the normal mode screen, the viewfinder display mode is changed. Each time this button is pressed, the viewfinder display is changed in the order Status 0, Status 1, Status 2 and then returned to Status 0.

For details on "Status Screen", see page 25.

DOWN] button

The above buttons (8) to (9) are used when setting the Setup Menu items for the camera section.

The menu screen is displayed in the viewfinder. See page 65.

PHASE H] Horizontal phase control

Use this control to adjust the H sync phase while the genlock signal is input.

[PHASE SC FINE] Color sub-carrier phase control

Use this control to fine-adjust the SC phase while the genlock signal is input.

♠ [PHASE SC COARSE] Color sub-carrier phase

Use this control to coarse-adjust the SC phase while the coarse adjustment control

genlock signal is input.

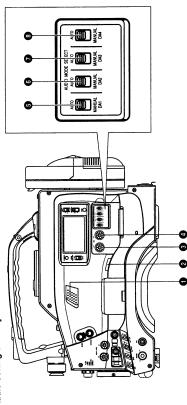
The SC phase will toggle between 0°, 90°, 180° and 270°.

The SC momection with a switcher on page 80 for **©** through **©**.

2. CONTROLS, INDICATORS AND CONNECTORS

2-3 Right Side Section (Cont'd) (U-ver.)

[Audio Setting Section]



Monitoring loudspeaker

- Enables EE monitoring of the input audio signal during recording, in the record-pause mode or in the stop mode.
- The PCM audio channels to be output can be selected using Outputs the playback sound in the playback mode
 - the AUDIO MONITOR switch on page 16.
- The loudspeaker volume can be adjusted with the AUDIO MONITOR control.

The audio from the loudspeaker is defeated when an earphone is plugged into the EARPHONE jack. The warning alarm tones are also output through this loudspeaker. For details, see pages 81 and 82.

Lithium Battery Installation Case

Installs a lithium battery in this case. The battery is used for the backup of the time code and the date/time data. The DY-90 is delivered without the battery installed. Install the lithium battery provided (CR2032). See page 34 for information about

(DA3 AUDIO LEVEL) control

how to install it.

Adjusts the audio recording level of the [DA3 IN] connector on

The volume can be controlled when @ [DA3 AUDIO MODE SELECT] switch is set to MANUAL

[DA4 AUDIO LEVEL] control

Adjusts the audio recording level of the [DA4 (MIC1 IN)] connector on the left side section.

The volume can be controlled when 🕲 [DA4 AUDIO MODE SELECT] switch is set to MANUAL

[DA1 AUDIO MODE SELECT] switch

Selects the audio recording level adjusting method for the [DA1 IN] connector on the rear panel.

: The audio recording level is held at the reference level even when sounds greater than the refer-

The recording level does not increase when the ence input level are input. input level is low.

MANUAL: The recording level can be adjusted with @ DA1 AUDIO LEVEL control on page 13.

⑤ [DA2 AUDIO MODE SELECT] switch

Selects the audio recording level adjusting method for the [DA2 The audio recording level is held at the reference IN (MIC IN)] connector on the front section AUTO : The audio recording level is he

input level are input.
The recording level does not increase when the level even when sounds greater than the reference

input level is low.

MANUAL: The recording level can be adjusted with @ DA2

AUDIO LEVEL control on page 13. [DA3 AUDIO MODE SELECT] switch

Selects the audio recording level adjusting method for the [DA3 IN] connector on the rear panel.

AUTO : The audio recording

: The audio recording level is held at the reference level even when sounds greater than the reference input level are input.

The recording level does not increase when the input level is low.

MANUAL: The recording level can be adjusted with ® DA3

(a) [DA4 AUDIO MODE SELECT] Switch

AUDIO LEVEL control.

Selects the audio recording level adjusting method for the [DA4 IN (MIC1 IN)] connector on the front section.

AUTO : The audio recording level is held

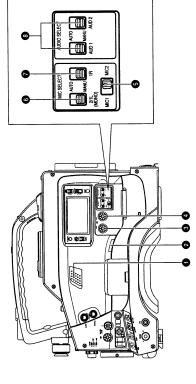
The audio recording level is held at the reference level even when sounds greater than the refer-

The recording level does not increase when the ence input level are input. input level is low.

MANUAL: The audio recording level can be adjusted with @ DA4 AUDIO LEVEL control.

2-3 Right Side Section (Cont'd) (E-ver.)

[Audio Setting Section]



Monitoring loudspeaker

- Enables EE monitoring of the input audio signal during recording, in the record-pause mode or in the stop mode.
 - Outputs the playback sound in the playback mode
- · The PCM audio channels to be output can be selected using the AUDIO DISPLAY switch on page 16.
- The loudspeaker volume can be adjusted with the AUDIO phone is plugged into the EARPHONE jack. The warning The audio from the loudspeaker is defeated when an earalarm tones are also output through this loudspeaker. MONITOR control.

Lithium Battery Installation Case

For details, see pages 81 and 82.

90 is delivered without the battery installed. Install the lithium Installs a lithium battery in this case. The battery is used for the backup of the time code and the date/time data. The DYbattery provided (CR2032). See page 34 for information about

[AUD1 LEVEL] control

Adjusts the recording level of the audio signal input to the [AUD IN] terminal on the rear panel. This control is effective when how to install it.

AUDIO 1 SELECT switch is set to the "AUTO" position.

Adjusts the recording level of the audio signal input to the [AUD 2 INJ terminal on the rear panel. This control is effective when AUDIO 2 SELECT switch is set to the "AUTO" position. (A) [AUD2 LEVEL] control

[5] [MIC1/MIC2] select switch

: Records the audio signal of the microphone connected to the [MIC1] connector. Select the camera's microphone mode with this switch.

: Records the audio signal of the microphone connected to the [MIC2] connector.

Selects the recording level adjusting method for the camera [MIC2/1L (MONO)] auto/manual select switch

- Microphone of MIC 2 connector microphones:
- Monaural microphone of MIC 1 connector
 Stereo microphone L channel of MIC 1 connector
- MIC 1 or MIC 2 can be selected with the @[MIC1/MIC2] SELECT switch.
 - level even when sounds greater than the reference The audio recording level is held at the reference input level are input.
- The recording level does not increase when the
 - The recording level can be adjusted with (MONO) 2/1L REC LEVEL control on page 13. input level is low.

MANO

[MIC1R] auto/manual select switch

This switch selects the recording level adjusting method for the R-channel of the stereo microphone connected to the] connector. [MIC1]

: The audio recording level is held at the reference level even when sounds greater than the reference input level are input.

The recording level does not increase when the

The recording level can be adjusted with 7 1R REC LEVEL control on page 13. input level is low. MANU

⑤ [AUD1•2] auto/manual select switch

Selects the recording level adjusting method for the audio Selection is made for each signal input to AUD 1 IN and AUD signals input to the AUDIO INPUT connectors on the rear panel. 2 IN connectors separately. **AUTO**: The audio recor

: The audio recording level is held at the reference level even when sounds greater than the reference input level are input.

The recording level does not increase when the

input level is low.

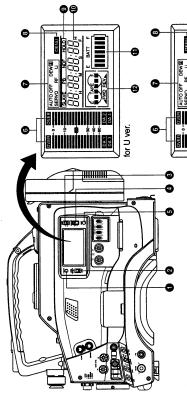
: The recording level can be adjusted with **②** or **④** AUDIO REC LEVEL control.

MANU

2. CONTROLS, INDICATORS AND CONNECTORS

2-3 Right Side Section (Cont'd)

[VCR Display]



[WARNING] Indication

This indicator lights or blinks in red in the case of a warning condition related to the remaining tape time, remaining battery power or other abnormal condition in the unit. For details, see pages 81 and 82.

188.88

EWO BEV

@ [AUDIO MONITOR] switch

This switch is used for selection of the PCM audio channel for the audio level meter, audio monitor output or the audio

DA1/DA2: Audio signals from the PCM audio DA1 and DA2 channels are output.

DA3/DA4 : Audio signals from the PCM audio DA3 and DA4 channels are output.

Regardless of this switch the DA1/DA2 channel audio signal is in playback the during Search Mode.

[LIGHT] switch

Turns the display back light ON or OFF.

OFF: The display is not back-lighted.

(Keep this switch to OFF during battery operation of the DK-90 or when it is required to reduce the power consumption for a : The display is back-lighted.

(D) [COUNTER] switch

certain reason.)

Selects the contents displayed on the LCD counter

. Set to this position to display time codes or when pre-Set to this position to display the CTL counter 유

: Set to this position to display the user's bits of time codes or presetting the user's bit. setting the time code.

the TC DISP switch in the time code/setup menu setting block is set to TC. If it is set to SUB TC, the date and time data is displayed in its place. Time codes or user's bits can be displayed provided that

(BESET) button

- Press to reset the CTL counter value.
- Pressing the button during time code or user's bit presetting operation resets the time code or user's bit data to .00:00:00:00

Audio level meters

- Shows the audio input level of the DA1 and DA2 channels in For selection of the audio channels to be displayed, use the the record mode or EE mode.
 - The peak output level is held for approximately 2 seconds. AUDIO MONITOR switch.

Note:

The level meter activated immediately after the power is switched ON. This is not a maffunction.

E-15

2-3 Right Side Section (Cont'd

Warning indicators

Lights when a non-recoverable error (e.g. tape winding error, drum stopped, etc.) occurs with the VCR. This indicator also AUTO OFF indicator

lights if condensation occurs.
For details, see _TROUBLES WITH ERROR CODE OUT-PUTS" on page 84. DEW indicator

Lights when condensation (dewing) occurs on the drum or When the condensation has disappeared, the indicator turns The unit rejects all operations while this indicator is lit. other mechanism in the unit.

Lights when the drum servo is troubled during recording to SERVO indicator

off and the unit accepts operations again.

indicate that normal recording is not being made

The head clog is detected during back-space between different scenes. Note that it is not detected during recording. Lights when the video head is clogged.

See the manual for the head cleaning tape (DCL-5) which is specifically made for this unit. Should this indicator light up, clean the head using the special head cleaning tape

generator is nearly exhausted and indicate the necessity of This is the lithium battery indicator which lights when the See page 34 for information about How to Replace Backup lithium battery which backs up data of the built-in time code replacement

MENU indicator

Lithium Batteries.

This indicator lights when the setup menu mode is engaged by pressing

MENU button on page 18.

Time code-related indicators SLAVE indicator

time code generator is slave-locked (synchronized) with the LTC time code signal input at the TC IN connector. For the slave lock of the time code, see page 58. This is the slave lock indicator which lights when the built-in

This is the time code playback indicator which lights when PB indicator

This is non-drop frame indicator which lights when the framing mode of the built-in time code generator or the reproduced time code in play mode is in the non-drop frame mode. This indicator does not light in drop frame mode. the time code is in playback mode. NDF indicator (U-ver. only)

• If lights permanently when the CTL counter is in use. ■ HOLD indicator

Lights when the time code generator display is held by pressing the HOLD button in the time code setting block. The time code or user's bit can be preset while this indicator

Counter display

 Usually, this section shows the data of the CTL counter, time code or user's bit. The display mode can be selected with the COUNTER switch.

• With the COUNTER switch set to "TC" or "UB", when ITC DISP switch on page 18 is set to the "SUB TC" position, time and date are displayed. Displays the setup menu data when the DY-90 is in the setup menu mode by pressing **@** MENU button on page 18. The setup menu includes the hour meter (drum operating time). This section shows an error code when an abnormal condition occurs with the VCR. For details on the counter display, see page 22.

Remaining battery power indicator

Shows the remaining battery power with a 7-dot segment bar

To display the remaining battery power accurately, set the setup menu item "BATI. TYPE SELECT" according to the type of the battery pack in use.
 Tor details on the remaining battery power display, see page 22.

Cassette/tape direction/remaining tape time indica-



tors

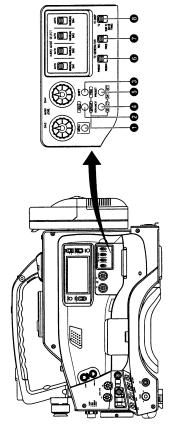
: Lights when the unit is loaded with a cassette tape. Blinks during ejection or tape : One of the indicators lights according to the tape transport direction. Tape direction FWD REV Remaining tape: The remaining tape situation is shown with a 6-dot segment bar display. E TAPE F

For details on the remaining tape display, see page 22.

CONTROLS, INDICATORS AND CONNECTORS

2-3 Right Side Section (Cont'd)

VCR Setup Block]



[MENU] button

Press this button to enter the setup menu mode.
When the setup menu mode is engaged, the "MENU" indicator in the LCD display lights and the counter display is changed to

In the setup menu mode, pressing this button resumes the the menu indication. normal mode.

[HOLD/GROUP] button

 Press when presetting the time code or user's bit. The presently displayed data is held (the HOLD indicator lights on the display) and the leftmost digit of the counter blinks. Pressing this button during time code or user's bit presetting cancels the operation and recalls the previous display

In setup menu mode, this button is used to select the menu

[SHIFT/ITEM] button

 During time code or user's bit presetting, press to select the digit to be set. Each press of the button shifts the digit to be set (which blinks) to the right.

In setup menu mode, this button is used to select the menu

[ADVANCE/SELECT] button

 During time code or user's bit presetting, press to select the value of the digit to be set. Each press of the button increases the number by 1.

 In setup menu mode, this button is used to select the value of a menu item.

(a) [PRESET/DATA SET] button

 During time code or user's bit presetting, press to save the set value in the preset memory. The set time code or user's bit will be preset in the time code generator.

In setup menu mode, this button is used to save the menu item setting the data in the memory. For details of the time code or user's bit presetting, see page

56.
For details on the setup menus, see page 62.
The buttons from

to above are also used in setting the date and time of SUB TC data. For the date and time setting, see page 61.

Time code generator setting switches

@ [PRESET/REGEN] switch

Selects the time code generator mode between PRESET and REGEN

setting and recording the time code. Also use this position when the unit is to be slave-locked to an external time code generator connected to the TC PRESET: Preset mode. Set to this position when newly pre-IN connector.

time codes on the tape and records time codes by succeeding them. Set to this position when you want to connect additional time codes to a tape in which time codes have already been recorded as : Regeneration mode, in which the unit reads existing far as the middle REGEN

(REC/FREE] run switch

erator is in preset mode. This switch is not effective in the REGEN mode. REC : The time code runs only during recording. This position Selects the time code running mode while the time code gen-

allows you to record continual time codes when recording scenes one after another.

FREE: The time code runs permanently. Set to this position when the unit is slave-locked with an external time code generator.

 If this position is used when recording scenes one after another, the time codes become discontinuous at the change points between scenes.

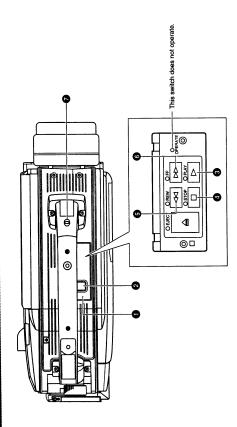
(TC DISP] switch

When the COUNTER switch on page 16 is set to TC or UB, it selects the type of time code to be displayed on the counter display.

TC : Ordinary time codes or user's bits are displayed. SUBTC : Data in another time code area (sub-time code area) is displayed. This unit records the date and

For details, see "SUB-TIME CODE" on page 60. time data in this area.

2-4 Top Section



Operation cover

Open this cover when operating the playback mode. Otherwise keep this cover closed.

[EJECT] button

Press to eject the cassette tape. It can be pressed even when the operation cover is closed. The LED indicator above the EJECT button lights up during the ejection operation.

[PLAY] button

Press to start playback. In play mode, the unit outputs the video and audio signals of normal playback and the LED indicator above the PLAY button lights.

The audio output during this period is the linear track audio. The same audio is signals as as the PCM audio DA/DA2 channels are recorded on the linear tracks of the tape. The PCM audio DA3 and DA4 channels are not recorded If the auto tracking is active at the moment the play mode starts, the playback video will be interfered with digital noise.

[STOP] button

on the linear tracks.

mode. However, when stop mode has continued for about 30 minutes, the VCR section enters tape protect mode, in which takes more time than usual to enter the record or play mode from the tape protect mode. The LED indicator above the STOP Press to enter stop mode. The drum keeps rotating in stop the drum stops rotation and the tape tensioner is released. It button lights in stop and tape protect modes.

The time until tape protect mode is initiated can be set to 1,
 5 or 30 minutes with setup menu item "LONG PAUSE TIME

() [REW] button

Press to rewind tape.

· Pressing the button in stop or fast forward mode initiates rewind mode. The LED indicator above the REW button lights in this mode.

Pressing the button during playback or forward search The search audio recorded in the linear track is reproduced initiates reverse search at about 6 times the normal play speed. The LED indicators above the PLAY and REW buttons light during reverse search

(FF) button

during reverse search.

Press to fast forward tape.

• Pressing the button in stop or rewind mode initiates fast forward mode. The LED indicator above the FF button lights in this mode.

· Pressing the button during playback or reverse search initiates forward search at about 6 times the normal play speed. The LED indicators above the PLAY and FF buttons The search audio recorded in the linear track is reproduced light during forward search.

Back tally lamp

during forward search.

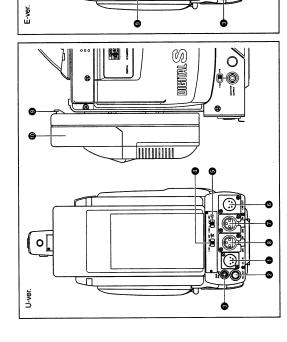
This lamp lights up when this unit enters the record mode. It blinks during the transition to the record mode. It also blinks

 This lamp does not light up when the "BACK TALLY" item in the camera's main menu screen is set to OFF. (See page 67.) when an error occurs on the DY-90.

The buttons Ø ~ @ are not effective during recording. Note:

2. CONTROLS, INDICATORS AND CONNECTORS

2-5 Rear Section



(EARPHONE] earphone jack

0

itoring earphone. Plug in a 3.5 mm dia. earphone or head-This is a stereo mini-jack for use in connecting an audio mon-

phone plug. The earphone can also be used to monitor alarm tones de-The sound from the monitoring loudspeaker is interrupted when pending on situations.

When a cable is connected here, the power supply from the battery pack is interrupted and the source is switched to the

power supplied through this connector

Power input connector for 12 V DC. Connect with the optional

AA-G10 or AA-P250 battery charger. (D [DC IN] connector (XLR 4-pin)

[DA1 IN LINE/MIC] select switch (U-ver.)

an earphone is connected here.

Signal

ġ.

GND

@ Θ **©**

Set to this position when connected to the audio Select the audio signal input to the

DA1 IN connector. I NE

Set to this position when the microphone requiring equipment, etc. The reference input level is +4 dBs Set to this position when the microphone i connected. The reference input level is -60 dBs. ĭ

DC12V

+48 V power supply (JVC MV-P615, etc.) is +48V ON

A +48 V DC is supplied from this connector.

Power output connector to a wireless microphone transmitter, etc. The supply voltage is identical to the voltage supplied to the unit (DC 12V max. 0.1 A).

[DC OUT] connector

[AUD1 IN LINE/MIC] select switch (E-ver.)

Signal

Ö

GND

Θ @

Set to this position when the microphone requir-Set to this position when connected to the audio : Set to this position when the microphone is conequipment, etc. The reference input level is +4 dBs Select the audio signal input to the
 AUD1 IN connector. nected. The reference input level is -60 dBs. Ę 일 ¥

+48 V power supply (JVC MV-P615, etc.) is con-+48V ON

DC12V (Power through)

(Surface profile)

@ € A +48 V DC is supplied from this connector.

2-5 Rear Section (Cont'd)

6 [DA3 IN LINE/MIC] select switch (U-ver.)

Select the audio signal input to the **②** DA3 IN connector. **LINE**: Set to this position when connected to the audio

equipment, etc. The reference input level is +4 dBs. : Set to this position when the microphone is con-: Set to this position when the microphone requirnected. The reference input level is -60 dBs. 읮

+48 V power supply (JVC MV-P615, etc.) is con-48V ON

A +48 V DC is supplied from this connector.

G [AUD2 IN LINE/MIC] select switch (E-ver.)

equipment, etc. The reference input level is +4 dBs. : Set to this position when the microphone is con-Set to this position when connected to the audio Select the audio signal input to the 🧔 AUD2 IN connector nected. The reference input level is -60 dBs. +48 V power supply (JVC MV-P615, etc.) is con-+48V ON

: Set to this position when the microphone requir-

일

A +48 V DC is supplied from this connector.

(XLR OUT) connector (XLR 5-pin)

Outputs the PCM audio DA1/DA2 or DA3/DA4 channel signals in analog audio.

The audio channels to be output can be selected by the **3** AUDIO MONITOR switch on page 16. Outputs the input audio signal in the record, record-pause

and stop modes.

Outputs the playback audio signal in the playback mode.

Alarm sound is not output.



Signal	GND	DA1/3 (H)	DA1/3 (C)	DA2/4 (H)	DA2/4 (C)
ġ	-	8	6	4	2

Connect the external audio equipment or microphone to this connector. Set the **@** DA3 IN LINE/MIC select switch accord-7 [DA3 IN] DA3 input connector (XLR 3-pin) (U-ver.)

The audio signal from this connector is recorded on the DA3 of the PCM audio channel. ing to the connected equipment.

* It is not recorded on the linear track of the tape for audio

Connect the external audio equipment or microphone to this connector. Set the **@** AUD 2 IN LINE/MIC select switch ac-(AUD2 IN] Audio 2 input connector (XLR 3-pin) (E-ver.) cording to the connected equipment.

Connect the external audio equipment or microphone to this connector. Set the **@** DA1 IN LINE/MIC select switch accord-[DA1 IN] DA1 input connector (XLR 3-pin) (U-ver.) ing to the connected equipment.

The audio signal from this connector is recorded on the DA1 It is recorded on the linear track of the tape for audio search. of the PCM audio channel.

(AUDIO IN connector)



NO - 2 E	Signal	GND	НОТ	COLD
	ON.	-	2	ဗ

Connect the external audio equipment or microphone to this connector. Set the **@** AUD 1 IN LINE/MIC select switch ac-[6] [AUD1 IN] Audio 1 input connector (XLR 3-pin) (E-ver.) cording to the connected equipment.

For information about which channel of the tape the audio signal from the audio input connectors 🕢 🔞 is recorded, see page 64.

(AUDIO IN connector)



Signal	GND	НОТ	COLD
į	-	2	3

Battery case release button

Push to unlock the battery case cover. The battery case cover should be opened while pushing this button

Battery holder

For battery information and the attaching/detaching method of the battery, see page 35. Mount the Anton-Bauer battery pack here.

Battery case

tery pack.
For details, see "USING JVC'S NB-G1 OR FLAT SHAPE TYPE Load a Flat Shape Type battery pack or the JVC NB-G1U bat-BATTERY PACK" on page 36.

2-6 Counter Display Contents (U-ver.)

CONTROLS, INDICATORS AND CONNECTORS

CTL counter Time display Time code User's bit 0.00:00:00 Hr. Min. Sec. Frame .TL. ■ 1. Tape counter display COUNTER switch TC SUB TC TANET TC DISP

In case of VCR error Date display 4. Error code display Setup menu setting display †0 -1 [MENU] button 7:40

1:4r-02:00+ putton Hour meter display

[GROU

Remaining Tape Time Display

The 6-dot segment bar display shows the remaining tape time in record and play modes. The lighted segment bars decrease as the remaining tape decreases. The reference tape time is as shown below.

: Lighted. ;; : blinked.

Near the beginning of tape	More than 25 minutes of remaining tape. ("F" extinguished.)	10 to 15 minutes of remaining tape. (This display represents the begining of the tape in the case of DS-10 tape.)	2 to 5 minutes of remaining tape.	Less than 2 minutes of remaining tape. (The last dot and "TAPE" blink.)	End of tape. ("TAPE" and "E" blink.)	
	E TAPE	E TAPE	E TAPE	- TAKE	Warden -	

When the tape has ended completely, a warning is provided

by an alarm tone, etc.

The remaining tape information is not displayed when no cassette tape is loaded or during the remaining tape calculation which takes place immediately after a cassette tape is insert-

The counter display shows the following 4 types of information.

Tape counter display

The counter display usually functions as a tape counter (hour, minute, second, frame). It can be switched to a CTL counter, time code or user's bit display by using the COUNTER switch.

(Provided that the TC DISP switch is set to TC)
• CTL counter: Time between –9 hr. 59 min. 59 sec. 29 frames and 9 hr. 59 min. 59 sec. 29 frames : Time between 0 hour and 23 hr. 59 min. 59 sec. 29 frames can be displayed. can be displayed. Time code

: Hexadecimal number from 0 to F is displayed in 8 digits. User's bit

By setting the TC DISP switch under a cover on the right side panel to SUB TC, the time and date data can be dis-

played here.

• When the COUNTER switch is set to TC: The time (hour, minute, second, frame) is displayed. TC: The time (hour, minute, second, trame) is us. UB: The date: (month, day, year) is displayed.

 Press the MENU button to switch to the VCR setup menu setting display.

Setup menu setting display

After having set the setup menus, press the MENU button to return to the tape counter display. For details, see "VCR SETUP MENUS" on page 63. This display is used when setting the setup menus

Hour meter display

The hour meter is displayed in the setup menu Group 1. The hour meter data refers to the head drum running time. 4. Error code display

The error code is displayed automatically in case an abnormal For details of error codes, see "TROUBLES WITH ERROR CODE OUTPUTS" on page 84. condition occurs with the VCR section

Remaining Battery Power Display

The 7-dot segment bar display shows the remaining battery power. The lighted segment bars decrease as the remaining battery power decreases.

 To display the remaining battery power accurately, set the setup menu item "BATT.TYPE SELECT" according to the type of the battery pack in use.



All segment bars light when a fully-charged battery pack is attached.



The last 2 segment bars and "BATT" start to blink when the battery is nearly exhausted. Replace with a fully-charged battery pack.



and "BATT" blink and the unit stops operation automatically. When the battery capacity has run out, "E"

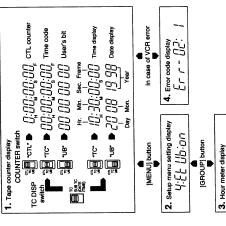
7

U-22

23

2. CONTROLS, INDICATORS AND CONNECTORS

2-6 Counter Display Contents (E-ver.)



Remaining Tape Time Display

11-11-11

The 6-dot segment bar display shows the remaining tape time in record and play modes. The lighted segment bars decrease as The reference tape time is as shown below. the remaining tape decreases.

☐: Lighted. ::: blinked.

E TAPE F	Near the beginning of tape
E TAPE	More than 25 minutes of remaining tape. ("F" extinguished.)
E TAPE	10 to 15 minutes of remaining tape.
E TAPE	2 to 5 minutes of remaining tape.
	Less than 2 minutes of remaining tape. (The last dot and "TAPE" blink.)
1617A161	End of tape. ("TAPE" and "E" blink.)

- When the tape has ended completely, a warning is provided by an alarm tone, etc.
- The remaining tape information is not displayed when no cassette tape is loaded or during the remaining tape calculation which takes place immediately after a cassette tape is insert-

The counter display shows the following 4 types of information.

Tape counter display

minute, second, frame). It can be switched to a CTL counter, time code or user's bit display by using the COUNTER switch. (Provided that the TC DISP switch is set to TC)

• CTL counter: Time between – 9 hr. 59 min. 59 sec. 24 frames and 9 hr. 59 min. 59 sec. 24 frames can be displayed. The counter display usually functions as a tape counter (hour,

sec. 24 frames can be displayed. : Hexadecimal number from 0 to F is displayed : Time between 0 hour and 23 hr. 59 min. 59 Time code

By setting the TC DISP switch under a cover on the side panel to SUB TC, the time and date data can be displayed in 8 digits User's bit

When the COUNTER switch is set to

 Press the MENU button to switch to the VCR setup menu TC: The time (hour, minute, second, frame) is displayed. UB: The date: (day, month, year) is displayed.

Setup menu setting display setting display.

After having set the setup menus, press the MENU button to return to the tape counter display. For details, see "VCR SETUP MENUS" on page 63. This display is used when setting the setup menus.

Hour meter display

The hour meter is displayed in the setup menu Group 1. The hour meter data refers to the head drum running time.

Error code display

condition occurs with the VCR section.

For details of error codes, see "TROUBLES WITH ERROR CODE OUTPUTS" on page 84. The error code is displayed automatically in case an abnormal

er. The lighted segment bars decrease as the remaining battery The 7-dot segment bar display shows the remaining battery pow-

Remaining Battery Power Display

 To display the remaining battery power accurately, set the setup menu item "BATT. TYPE SELECT" according to the type of the battery pack in use.



凝

All segment bars light when a fully-charged

battery pack is attached.

The last 2 segment bars and "BATT" start to blink when the battery is nearly exhausted. Replace with a fully-charged battery pack.



When the battery capacity has run out, "E" and "BATT" blink and the unit stops operation automatically.

SOOM servo control lever

2. CONTROLS, INDICATORS AND CONNECTORS

Pushing this lever in the W direction makes the lens move Pushing harder changes the speed of the Zoom. To operate the servo zoom feature with this lever, set the ZOOM knob **@** Pushing this lever in the T direction makes the lens move tighter.

D IRIS mode switch

A : Activates the auto iris feature.M : Allows manual iris control.

When the IRIS MODE switch is at M, pushing this button activates the Auto Iris Function while it is held down only. Momentary auto iris button

IRIS speed adjusting control

Adjusts the iris operation speed

D FILTER screw

Other filters can be used for various effects. front inside of the lens hood.

Protect the lens with a Clear or UV filter by screwing on to the

COOM mode knob

S : Servo Zoom mode. Allows operation by the Zoom Servo M : Manual Zoom mode. Allows zoom control by the Zoom Control lever @.

REMOTE FOCUS control connector

To connect with an optional focus servo unit.

® ZOOM servo connector

Connect with an optional zoom servo unit. BACK FOCUS ring/fixing screw

For Set-up Back Focus adjustment only.

Macro focusing ring (for close-up shooting) Secure with the Screw knob after adjustment

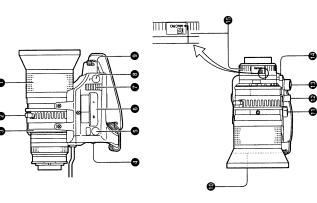
Normal focus adjustment and zooming are not available in the By rotating this ring in the direction of the arrow, the lens becomes capable of close-up shooting of very small objects.

To adjust the focus of the macro image, rotate this ring in the direction of arrow until the object is focused. To shoot images in the macro mode, set the focus ring to the infinite position and the zoom ring to the widest angle position.

CAUTION:

After the required operation, be sure to return the macro ring The back-focus knob is located close to the macro ring, be careful not to mistake the back-focus knob for the macro ring. to the normal position.

2-7 Lens (optional)



FOCUS ring

Manual focus ring.

200M lever/ring

This is the manual zoom ring equipped with a zoom lever. To activate the zoom feature on, turn the zoom mode knob **(** to position "M".

IRIS ring

Manual Irisi ring. To activate the auto iris feature, set the Iris Mode switch (to A.

[VTR] Trigger button

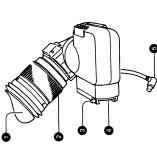
To stop shooting push again. To start shooting push once.

[B [RET] return video button

The return video signal from the VCR section can be monitored on the viewfinder only while pushing this button.

The Viewfinder Status display is not available during this

2-8 1.5-Inch Viewfinder VF-P116 (optional



Rotate this ring to adjust the viewing angle. Be sure to adjust this ring because the viewing angle affects the lens focus adjustment. To perform more reliable focus adjustment, it is recommended to turn on the contour with the PEAKING control ©. The Eyepiece can be opened to view the screen directly. Blocks light to viewfinder screen and holds eye optics. B Eyepiece focusing ring

Stopper screw

This stopper screw prevents the viewfinder from coming off the camera.

Attaches to the Viewfinder Mount base on camera Viewfinder shoe

G Cable

Connect to camera viewfinder connector.

Tally switch

Set this switch to off if you do not want to inform the subjects

by the Tally light that they are being recorded.

No : Lights the Tally lamp @ during recording.

OFF : Does not light the Tally lamp @ .

However, the REC lamp at the eyepiece will not turn off.

Tally light

Lights when recording is in progress.

The light does not come on when the Tally Switch

is at "OFF".

Rotate to adjust the contour of the viewfinder screen image. @ [PEAKING] peaking (contour) control

CONT contrast

Controls the level of Viewfinder contrast.

(BRIGHT] brightness

Controls the level of Viewfinder brightness.

2. CONTROLS, CONNECTORS AND INDICATORS

2-9 Viewfinder Display

WARNING INDICATORS INSIDE THE VIEWFINDER

The viewfinder has two LED indicators below the screen. These LEDs light or blink to indicate the present status of the camera or the VCR's camera control unit. [BATT] BATTERY LIGHT REC/ALARM LIGHT ALARM Q BATT BATT LIGHT

This blinks red when battery voltage becomes too low for the camera to operate. This lights when the battery has run out.

REC/ALARM LIGHT

This lights green for these conditions.
Solid Green : While recording.
Blinks Green : • While the VCR prerolls before recording.

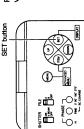
If the Tape is finishing.
If the VCR Malfunctions

VIEWFINDER SCREEN DISPLAY

The viewfinder screen displays the following information, however, these are not displayed during VCR playback.

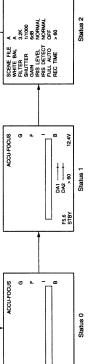
- Status screens (screens for use in checking the current camera setup)
- Alarm message display
 - Safety zone display
- Setting screen (screen for use in the camera setup)
 - Auto white balance display
- Shutter speed display

Status Screens



Press the SET button during normal screen to display one of the status screens on the viewfinder. One of the three status screens will be displayed every time the button is pressed.

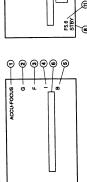


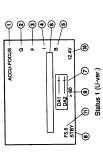


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2. CONTROLS, CONNECTORS AND INDICATORS

2-9 Viewfinder Display (Cont'd)







Status 2

ACCU-FOCUS -

Status 0

Status 0

O

⊚ ⊜

M1R + 60

F5.6 STBY

Status 1 (E-ver.)

	Display	Function
•	ACCU-FOCUS	Blinking or displayed during the ACCU-FOCUS operation.
1	s	Displayed when the Shutter or V. Scan is ON.
1	FAS	Displayed when the Full Auto Shooting is ON.
1	ALC	Indicator which appears when the individual ALC is ON.
	5	Displayed in other modes than 0 dB, LOLUX and ALC.
1	ı	Displayed during LOLUX operation.
1	u_	Displayed when the FAW is ON.
1	_	Displayed when the Auto iris level is set to the back light or
		spotlight operation.
1	В	Displayed during the black stretch or black compression switch
		operation.
	Event display	See the table below.

Event display
 Event is displayed for only about 2 seconds on the viewfinder screen when any of the following switches is operated.

Switch		Event Display Contents
ZEBRA	ZEBRA	ON, OFF
BLACK STRETCH/	BLACK	STRETCH, NORMAL, COMPRESS
BLACK COMPRESS		
GAIN	GAIN	-3 dB, 0 dB, 6 dB, 9 dB, 12 dB, 18 dB, ALC
WHT. BAL	WHITE BAL	A, B, PRESET, FAW
FULL AUTO	FULL AUTO	ON, OFF
IRIS	IRIS	BACK.L, NORMAL, SPOT.L
רסרחx	LOLUX	ON, OFF
FILTER control	FILTER	3.2K, 5.6K, 5.6K+ND, EFECT
FILE	SCENE FILE	A. B. OFF
VTR	VTR	STBY, SAVE
AUTO KNEE	AUTO KNEE	ON, OFF

2. CONTROLS, CONNECTORS AND INDICATORS

2-9 Viewfinder Display (Cont'd)

Status 1

In addition to the information on the status 0 screen, this screen displays information on the audio indicator, accumulated recording time, voltage and lens F number.

		Note: The level meter activated immediately after the power is switched ON. This is not a malfunction.				
Function	Shows the audio input channel and input level. Input channel indication is changed depending on the setting in the AUDIO MONITOR switch. Display ONVOFF can be selected by the menu screen. For details on "AUDIO DISPLAY", see page 67.	When the audio mout channed and input leaves in the set input channel indication is changed depending on the set ing of the AUDIO DISPLAY switch. Display ONOFF can be seeded by the amenu screen. For details on 'AUDIO DISPLAY, see page 67.	VCR in standby mode mode mode mode mode with save mode VCR in save mode VCR in stop mode VCR in record mode VCR in record mode VCR in sex-forward mode VCR in rewind mode VCR in elect mode VCR in elect mode	Remaining tape indication (displayed in 1-minute steps) Time code display Time code display Time code display is available when the "REC TIME" item on the advanced menu screen is set to TIME CODE. For details on "REC TIME", see page 69.	Voltage indication (displayed in 0.1 V steps) When an Anton-Bauer battery is connected and if the remaining battery power is detected, it shows the remaining battery power displayed as a percentage (%) figure. (In this case, the voltage indication is not displayed.)	Noves the Furnation of the connected lens. It is not displayed when the lens is removed. Also for some lenses, no display appears. It is not be connected in the man screen. For details on Tr NO DISPLAY, see page 67.
Display	① DA1+ (U-ver.) DA2+ (example)	M1L+ M1R+ (example)	STBY SAVE STOP REC FF REW EJECT	> 60 (Example) 12+ 34± 56s 20F	12.4 V (example) 50 % (example)	OPEN, F2, F2.8, F4, F5.6, F8, F11, F16, CLOSE
Display	(U-ver.)	(E ver.)	•	•	(9)	(

Status 2

This screen displays the camera setup.

Event display is not available while this screen is displayed.

Display Contents	A, B, OFF	A, B, PRESET, FAW	3.2K, 5.6K, 5.6K+1/16ND, EFECT (U ver.) 3.2K, 5.6K, 5.6K+1/4ND, 5.6K+1/16ND (E ver.)	OFF, 1/100 (U-ver.), 1/120 (E ver.), 1/250, 1/500, 1/1000, 1/2000, V.SCAN(1/60.5 to 1/1966.7); U-ver/(1/50.4 to 1/1953.1); E-ver, EEI (in ALC mode)	-3 dB, 0 dB, 6 dB, 9 dB, 12 dB, 18 dB, LOLUX, ALC	BACK.L, NORMAL, SPOT L	NORMAL, PEAK, AVG	ON, OFF	Tape remaining time or time code	
Display	SCENE FILE	WHITE BAL	FILTER	SHUTTER	GAIN	IRIS LEVEL	IRIS DETECT	FULL AUTO	RECTIME	

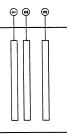
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2. CONTROLS, CONNECTORS AND INDICATORS

2-9 Viewfinder Display (Cont'd)

■ Alarm Message Display

The following alarm messages are displayed on the status 0 and status 1 screens.



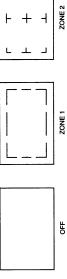
Display position	Display	Contents
Θ	LOW BATTERY	The battery capacity is nearly exhausted.
@	VTR WARNING [HEAD]	Head clog
	VTR WARNING [SERVO]	Servo error
	VTR WARNING [DEW]	Condensation
	VTR WARNING [HARD]	Hardware error
@	TAPE NEAR END	Tape remaining time is less than approx. 3
)		minutes in the record mode
	TAPE END	Tape end reached
	REC INHIBIT	VTR trigger is pressed with a non-recordable
		cassette (REC switch on the back of the cassette
		is set to OFF) loaded
	NO TAPE	VTR trigger is pressed with no tape

2-9 Viewfinder Display (Cont'd)

2. CONTROLS, CONNECTORS AND INDICATORS

■ Safety Zone

Three types of safety zone can be displayed in the viewfinder. Select the required one with the SAFETY ZONE item on the main menu screen.









ZONE 3

■ Setting the Screen Display

SCENE FILE A
NASTER BLACK NORMAL
NASTER BLACK NORMAL
RESOLUTION NORMAL
BACK TALLY
BACK TALLY
NO NORMAL
BACK TALLY
ON NORMAL
STATUTON NORMAL
BACK TALLY
ON FAULO DISPLAY SON
STATUTON NORMAL
STATUTON NORMAL
STATUTON NORMAL

Screen for use in the date setting and other camera setups. See the flow of MENU screen on page 65.

■ Auto White Balance Display



This screen appears during the auto white balance adjustment operation to display various data.

See "White Balance Adjustment" on page 44.

Shutter Speed Display

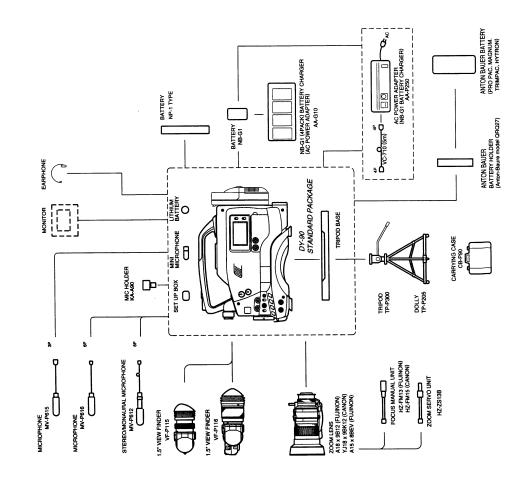
SHUTTER 1/1000

When the SHUTTER is on, a shutter speed is displayed. (for approx. 5 sec.) Also, whenever the shutter speed is altered by using the UP/DOWN button, the shutter speed is displayed, other displays disappear. While this is displayed, other displays disappear. See [SHUTTER] on page 14.

3. BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

3-1 Basic System (U-ver.)

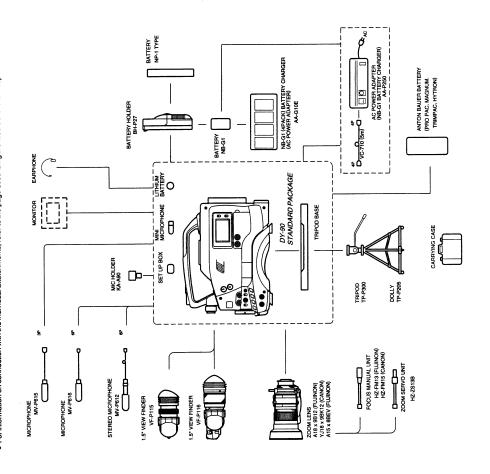
For information on connection with the individual attatchments, refer to the page describing the method for their respective connection.



3. BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

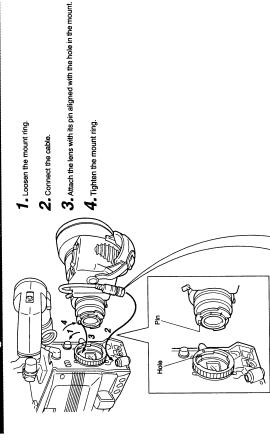
3-1 Basic System (E-ver.)

For information on connection with the individual attatchments, refer to the page describing the method for their respective connection.



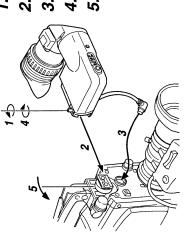
E-30

3-2 Attaching the Zoom Lens (optional



When unplugging the cable, grasp this portion and pull up. If you have any difficulty, it may be better to remove the lens itself first. In this case, be careful not to drop the lens.

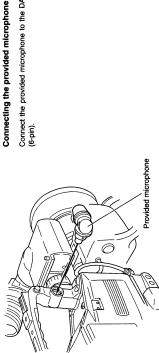
3-3 Attaching the Viewfinder (optional)



- Loosen the stopper screw.
- $oldsymbol{2}$. Attach the viewfinder with its guide aligned with the shoe.
- 3. Connect the cable.
- 4. Tighten the stopper screw.
- 5. Tighten the ring.

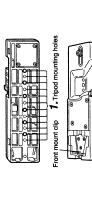
3. BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

3-4 Attaching the Microphone



Connect the provided microphone to the DA4(MIC1) connector (6-pin).

3-5 Attaching the Tripod Base



- Attach the tripod base on the tripod by using the hole which balances the unit most optimally,
- $m{3}_{r}$. Place the unit on the tripod base by aligning the rear base mount of the unit with the pin on the tripod base. $m{Z}_{\bullet}$ While pushing the safety lever, pull the lock lever toward the front until the front mount clip clicks into place.
- 4 Push the unit from the upward direction and slide it toward the front so that the front base mount of the unit is locked by the front mount clip of the tripod base as it clicks into place.

2. Lock lever

CAUTION:

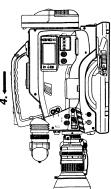
- The front base mount may be locked while the pin of the mount of the unit. Therefore, after mounting, make sure that tripod base is not inserted into the hole on the rear base these parts are engaged properly.
- impact or vibration should be avoided as this may cause the When moving the unit which is mounted on a tripod, any Be sure to remove the unit from the tripod before moving it. unit to become detached and to drop from the tripod.

Rear base

e,

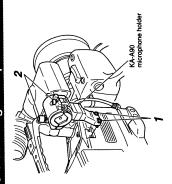
mount

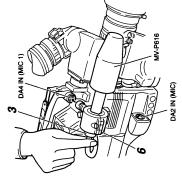
Front mount clip



3. BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

3-6 Attaching the Optional Microphone (U-ver.)





With the optional KA-A90 mic holder, the optional MV-P615/616 * When using the MV-P612 microphone, set the DA4(MIC1) mode (mono) and MV-P612 (stereo/mono), microphones can be used. switch on the MV-P612 to "mono" (monaural)

- Secure the mic holder with 2 screws.
- $oldsymbol{2}_{oldsymbol{r}}$ Turn the small knob located on the outer side of the mic holder anticlockwise to loosen it, and loosen the large knob located Rotate the large knob fully anticlockwise to open the holder. on the inner side in the same way.
- **3.** Attach the microphone to the mic holder so that the microphone does not interfere with the cassette holder. With microphone does not interfere with the cassette holder with a stereo microphone, make sure that the left/right-sides are
- 4. Set the mic holder so that the height is level, and tighten the inside and outside knobs to secure the microphone.
- When the MV-P616/MV-P612 is used, connect the microphone's 6-pin connector to the DA4 input connector Connect the microphone cable to the mic input connector. of this unit. S,
 - When the MV-P615 is used, connect the microphone's XLR 3-pin connector to the DA2 input connector of this unit. (Use When the microphone is connected to DA1 or DA3 input connector on the rear panel, set the MIC +48 V ON switch only phantom microphone)
- $oldsymbol{6}$. Secure the microphone cable using the cable clamp located according to the microphone used.

on the side of the mic holder

- When the light mounted on the camera is used at the same time, if the microphone in use has a long sound collecting section (ultra-directional type, etc.), the microphone's shadow may influence the image.
 - When using a KA-A70 mic holder, noise may interfere with the audio signal. In this case, use a KA-A90 mic holder instead.
- When using the MV-P612 in the stereo mode, or the broad-directional microphone, noise of this unit may be

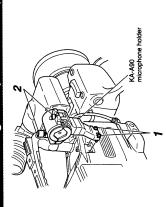
3. BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

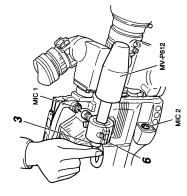
3-6 Attaching the Optional Microphone (E-ver.)

With the optional KA-A90 mic holder, the optional MV-P615/616

(mono) and MV-P612 (stereo), microphones can be used.

Secure the mic holder with 2 screws.





 $oldsymbol{4}_{oldsymbol{s}}$ Set the mic holder so that the height is level, and tighten the inside and outside knobs to secure the microphone.

correct.

3. Attach the microphone to the mic holder so that the microphone does not interfere with the cassette holder. With a stereo microphone, make sure that the left/right-sides are

anticlockwise to loosen it, and loosen the large knob located

on the inner side in the same way.

Rotate the large knob fully anticlockwise to open the holder.

Turn the small knob located on the outer side of the mic holder

 When the MV-P616/MV-P612 is used, connect the microphone's 6-pin connector to the MIC1 connector of this **5.** Connect the microphone cable to the mic input connector.

• When the MV-P615 is used, connect the microphone's XLR 3-pin connector to the MIC2 connector of this unit. (Use When the microphone is connected to AUD1 or AUD2 connector on the rear panel, set the MIC +48 V ON switch only phantom microphone)

 $oldsymbol{6}$. Secure the microphone cable using the cable clamp located according to the microphone used. on the side of the mic holder.

When the light mounted on the camera is used at the same time, if the microphone in use has a long sound collecting section (ultra-directional type, etc.), the microphone's shadow may influence the image

Note

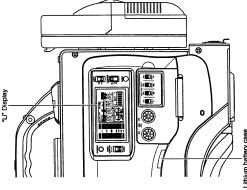
When using a KA-A70 mic holder, noise may interfere with the audio signal. In this case, use a KA-A90 mic holder instead.

U-35

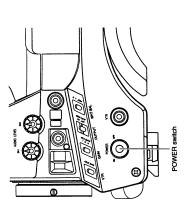
3. BASIC SYSTEM CONNECTIONS AND ADJUSTMENTS

How to Replace Backup Lithium Batteries

This unit uses a lithium battery to backup the time code and date/time data. Install the provided lithium battery : CR2032)



Lithium battery case

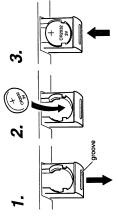


CAUTION

If the unit is not used for a lengthy period of time, remove the lithium battery. If the voltage of the lithium battery is low, the set may malfunction. When the lithium battery is not in place or the battery is running down and requires a replacement, the "L" in the LCD display will light up.

 Replace lithium batteries with the POWER switch set to ON.
 Doing it with the POWER switch set to OFF will cause the loss. of backup data

How to Install the Lithium Battery



1. Place a flat-blade screwdriver in the groove of the lithium battery case and lower it.

 $oldsymbol{2}_{oldsymbol{-}}$ Slide the battery into place with its + marked surface facing

 $oldsymbol{3}$. Push the lithium battery case back into the unit.

How to Remove Lithium Batteries



This unit is operable with the AC power supply or battery pack

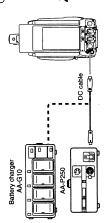
POWER SUPPLY (for U-ver.)

4-1 AC Operation

Mote:
 Do not remove or connect the DC cable while recording is being performed.

Use the JVC AA-G10 battery charger (max. rated output 4 A, 12 V DC) or AA-P250 battery charger (max. rated output 3.5A, 12.5 V DC) as the AC power supply.

Do not use any power source with large fluctuations in the power source voltage as with ripples or other noise.



4. After making sure that the power switches of the DY-90 and of the AA-G10 or AA-P250 are set to OFF connect the DC cable from the AA-G10 or AA-P250 to the DC INPUT connector of the DY-90 as shown in the illustration.

When the AA-P250 is used, set the CHARGE/CAMERA switch of the AA-P250 to CAMERA.
 When the AA-G10 is used, press the VTR button of the AA-G10.

Press the POWER switch of the unit to ON.
Now power is supplied to the unit.
• For details, read the instruction manual of the AA-G10 or AA-P280. ω

4-2 Battery Pack Operation

This unit can be operated with the following battery packs.

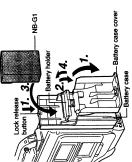
- ■JVC battery pack: NB-G1
- Flat shape type battery pack
- Anton-Bauer battery packPropack 13/14 SeriesTrimpack 13/14 Series
- Magnum 13/14 Series
 Compack 13/14 Series
- Battery holder: Anton-Bauer model QRQ27 See page 37 for the battery holder attaching method An Anton-Bauer battery pack cannot be attached to An additional battery holder is required. this unit directly.
- starts to be supplied through the DC INPUT connector.

 The connection and disconnection of the DC cable should be performed quickly and correctly when operating with a battery When the DC cable is connected to the DC INPUT connector, the power supply from the battery pack is interrupted and the power
- pack. The following symptoms may occur when connecting and disconnecting the DC cable too slowly when operating with a battery
- The power is cut off for a moment when the DC cable is disconnected.
 Noise to the video and audio signals occurs. Audio signal becomes mule.
 When operation is carried out with a new battery DC input after the previously battery capacity has run out, switch OFF the power once then switch ON after the DC voltage is applied.

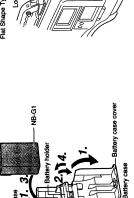
4-2 Battery Pack Operation (Cont'd)

Attaching a Flat Shape Type Battery Pack USING JVC'S NB-G1 OR FLAT SHAPE TYPE BATTERY PACK

Attaching the NB-G1 Battery Pack



Flat Shape Type battery pack se button



 $oldsymbol{1}_{oldsymbol{ iny}}$ Open the battery case cover while pushing the lock release

 $oldsymbol{2}_{oldsymbol{z}}$ Tilt the battery holder in the arrow-indicated direction.

 $oldsymbol{3}$. Insert the battery pack into the battery case with its electrodes facing the unit. $oldsymbol{4}_{oldsymbol{ ext{-}}}$ Close the battery holder in the arrow-indicated direction and close the battery case cover.

Switch the power to OFF when replacing the battery pack.

 $oldsymbol{\mathcal{I}}_{oldsymbol{s}}$ Open the battery case cover while pushing the lock release

 $oldsymbol{2}$. Tilt the battery holder in the arrow-indicated direction.

 $\boldsymbol{3}_{\text{a}}$ insert the battery pack into the battery case with its electrodes facing the unit.

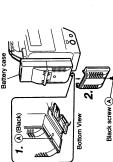
4. Close the battery case cover.

4-2 Battery Pack Operation (Cont'd)

ATTACHING AN ANTON-BAUER BATTERY PACK

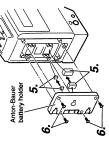
When an Anton-Bauer battery pack (Propack 13/14, Trimpack 13/14, Magnum 13/14, Compack 13/14 Series) is used, it is required to remove the battery case from this unit and attach the Anton-Bauer battery holder in place. Use the battery holder model described below. · Battery holder: Anton-Bauer model QRQ27 Removing the Battery case from this unit and Attaching Anton-Bauer Battery Holder In Place

 $oldsymbol{3}_{oldsymbol{ ext{-}}}$ Open the battery cover and battery holder.



4. Remove the 4 mount screws (B), disconnect the connectors between this unit and the battery cover, and separate the battery case from this unit.

Attaching the Anton-Bauer battery holder



 $m{1}_{m{a}}$ Remove the black screw igotimes from the bottom of the battery case. 2. Remove the lower half of the battery case cover in the

downward direction.

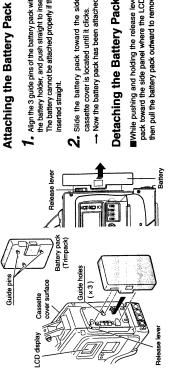
5. Connect the connectors from this unit and those of the battery holder (connect 2 pairs of connectors including the large and small ones).

6. Secure the battery holder onto this unit using the 4 mount screws supplied with the battery holder

Be careful not to pinch the connector wires; otherwise a malfunction may result.

Mount screws (B)

USING AN ANTON-BAUER BATTERY PACK



the battery holder, and push straight to insert the battery pack. The battery cannot be attached properly if the guide pins are not Align the 3 guide pins of the battery pack with the guide holes on nserted straight. 2. Slide the battery pack toward the side panel where the cassette cover is located until it clicks.

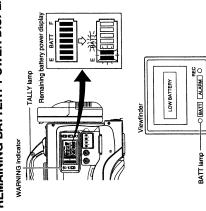
Now the battery pack has been attached.

Detaching the Battery Pack

INthile pushing and holding the release lever, slide the battery pack toward the side panel where the LCD display is located, then pull the battery pack outward to remove.

4-2 Battery Pack Operation (Cont'd)

REMAINING BATTERY POWER DISPLAY



When an Anton-Bauer intelligent battery pack is used, the input voltage indicator section in the Status 1 mode of the viewfinder displays the remaining battery power in percentage (%) figures.

Operating Time with Battery Pack

When the VF-P116 is used as the viewfinder and a fully charged battery pack is attached, the continuous operating time is as

Battery Pack NB-G1 NP-1B Magnum 14 Trimpack 14	Continuous Operating Time (at 25 °C)	40 Minutes	40 Minutes	80 Minutes	50 Minutes
	Battery Pack	NB-G1	NP-1B	Magnum 14	Trimpack 14

PRECAUTIONS FOR THE BATTERY PACK

- When the battery pack is not in use, it must be stored in a cool, <u>Becharging</u>
- to a high temperature (under direct sunlight in a car, etc.), this Do not leave the battery pack in a place where it might be subject could cause leakage of the fluid or shorten service life.
- If the operating time becomes greatly reduced even immediately after recharging, the battery pack has nearly finished its service life. Purchase a new battery pack.

• To display the remaining battery power accurately, set the Setup Menu item "BATT. TYPE SELECT" according to the type of the battery pack in use. For details see page 64. The status of the remaining battery power can be checked by the remaining battery power display. For details, see page 64.

- ■When the remaining battery power is nearly exhausted, the following warning message will appear. In this case, replace it with a fully-charged battery as soon as possible.
 - Remaining battery power display:
- Segment bar and BATT indicator starts to blink WARNING indicator and TALLY lamp blink
 - Viewfinder
- 'LOW BATTERY" character indication (Status 0 or Status 1 BATT lamp blinks
- Alarm sound beeps

After the remaining battery power warning appears, if the battery power operation is still continued, this unit automatically stops operation.

- Battery operating time may differ depending on the number of
- Operating time is reduced when the powered zoom lens is used

- When the terminal section of the battery pack gets dirty, the operating time will be shortened.

- charging times of the battery, charging conditions and the operating environment, etc. Use the values in the table on the
 - Operating time is reduced in areas with a cold environment. left for approximate reference times.

- Recharge the battery pack after completely discharging. If recharging is repeated with incomplete discharging, this could cause lowering of the battery capacity.
 - recharging and discharging, once discharge the battery pack completely, then recharge it to regain the battery capacity. If the battery capacity is lowered by repeating incomplete
- If the battery pack is recharged with its internal temperature raised immediately after use, recharging may not be performed completely.

POWER SUPPLY (for E-ver.)

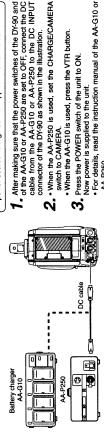
This unit is operable with the AC power supply or battery pack

4-1 AC Operation

Do not remove or connect the DC cable while recording is being performed. Note:

Use the JVC AA-G10 battery charger (max. rated output 3.5A, 12.5 V DC) or AA-P250 battery charger (max. rated output 3.5A, 12.5 V DC) as the AC power supply.

Do not use any power source with large fluctuations in the power source voltage as with ripples or other noise.



2. • When the AA-P250 is used, set the CHARGE/CAMERA switch to CAMERA. Press the POWER switch of the unit to ON.
Now power is supplied to the unit.
• For details, read the instruction manual of the AA-G10 or When the AA-G10 is used, press the VTR button. G,

AA-P250.

4-2 Battery Pack Operation

This unit can be operated with the following battery packs.

 Magnum 13/14 Series
 Compack 13/14 Series Propack 13/14 Series
 Trimpack 13/14 Series Anton-Bauer battery pack

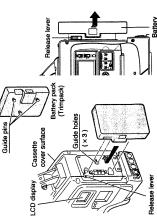
Flat shape type battery pack

- ■JVC battery pack: NB-G1
- When the NB-G1 or a flat type battery pack is used, the optional battery case BH-P27 must be mounted to this unit. For details see page 36.

Directly connect to the battery holder

- When the DC cable is connected to the DC INPLUT connector, the power supply from the battery pack is interrupted and the power starts to be supplied through the DC INPUT connector. The sconnection and disconnection the DC cable is should be performed quickly and correctly when operating with a battery the connection and disconnection of the DC cable is should be performed quickly and correctly when operating with a battery
 - pack. The following symptoms may occur when connecting and disconnecting the DC cable too slowly when operating with a battery
 - The power is cut off for a moment when the DC cable is disconnected.
- Noise to the video and audio signals occurs. Audio signal becomes mute.
 When operation is carried out with a new battery DC input after the previously battery capacity has run out, switch OFF the power once then switch ON after the DC voltage is applied.

USING AN ANTON-BAUER BATTERY PACK



Attaching the Battery Pack

- Align the 3 guide pins of the battery pack with the guide holes on The battery cannot be attached properly if the guide pins are not the battery holder, and push straight to insert the battery pack. inserted straight.
- 2. Slide the battery pack toward the side panel where the - Now the battery pack has been attached. cassette cover is located until it clicks.
- Detaching the Battery Pack

■While pushing and holding the release lever, slide the battery pack toward the side panel where the LCD display is located, then pull the battery pack outward to remove.

4. POWER SUPPLY (for E-ver.)

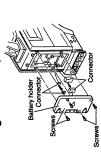
4-2 Battery Pack Operation (Cont'd)

USING JVC's NB-G1 OR FLAT TYPE BATTERY PACK

When JVC's NB-G1 battery pack or flat type battery pack is used, it is required to remove the battery holder of the DY-90 and the optional battery case (BH-P27) must be mounted.

Removing the Battery Holder and Attaching the BH-P27 Battery Case (optional)

3. Battery retaining holder

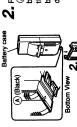


T. Remove the four screws fixing the battery holder and the two connectors (large, small) retaining the battery holder to this unit to remove the battery holder.

 $oldsymbol{3}_{oldsymbol{ ext{-}}}$ Open the battery case cover and the battery retaining holder. 4. Connect the battery case connector to the large connector

5. Mount screws

Attaching the BH-P27 battery case



2. Remove the black screw (A) on the bottom of the the lower half of the battery case cover in the downward direction. battery case, and remove

Secure the lower cover removed in step 2, using the black

screw (A).

6

Using the four fixing screws provided with the battery case,

of this unit.

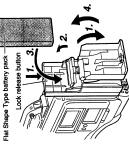
S,

mount the battery case to this unit.

Attaching a Flat Shape Type Battery Pack

Attaching the NB-G1 Battery Pack

Black screw A



NB-G1

 $oldsymbol{1}_{oldsymbol{ iny}}$ Open the battery case cover while pushing the lock release

T Open the battery case cover while pushing the lock release

 $oldsymbol{2}_{oldsymbol{ in}}$ Tilt the battery holder in the arrow-indicated direction.

 $oldsymbol{3}_{oldsymbol{-}}$ Insert the battery pack into the battery case with its electrodes facing the unit.

 $oldsymbol{3}_{oldsymbol{ in}}$ Insert the battery pack into the battery case with its electrodes

facing the unit.

 $oldsymbol{2}_{oldsymbol{ in}}$ Tilt the battery holder in the arrow-indicated direction.

Close the battery holder in the arrow-indicated direction and

close the battery case cover.

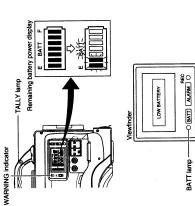
4

4. Close the battery case cover.

4-2 Battery Pack Operation (Cont'd)

4. POWER SUPPLY (for E-ver.)

REMAINING BATTERY POWER DISPLAY



The status of the remaining battery power can be checked by the

remaining battery power display. For details, see page 64.

• To display the remaining battery power accurately, set the Setup Menu item "BATT. TYPE SELECT" according to the

type of the battery pack in use. For details see page 64.

When an Anton-Bauer intelligent battery pack is used, the input voltage indicator section in the Status 1 mode of the viewfinder displays the remaining battery power in percentage (%) figures.

Operating Time with Battery Pack

When the VF-P116 is used as the viewfinder and a fully charged battery pack is attached, the continuous operating time is as

Continuous Operating Time (at 25 °C)	80 Minutes	50 Minutes	40 Minutes	40 Minutes	
Battery Pack	Magnum 14	Trimpack 14	NB-G1	NP-1B	

Operating time is reduced when the powered zoom lens is used

Operating time is reduced in areas with a cold environment.

PRECAUTIONS FOR THE BATTERY PACK

 When the battery pack is not in use, it must be stored in a cool, dry place. Do not leave the battery pack in a place where it might be subject

to a high temperature (under direct sunlight in a car, etc.), this could cause leakage of the fluid or shorten service life.

 When the terminal section of the battery pack gets dirty, the operating time will be shortened.

• If the operating time becomes greatly reduced even immediately after recharging, the battery pack has nearly finished its service life. Purchase a new battery pack.

charging times of the battery, charging conditions and the operating environment, etc. Use the values in the table on the left for approximate reference times. 'LOW BATTERY" character indication (Status 0 or Status 1 Battery operating time may differ depending on the number of ■When the remaining battery power is nearly exhausted, the following warning message will appear. In this case, replace it After the remaining battery power warning appears, if the battery power operation is still continued, this unit automatically stops operation. Segment bar and BATT indicator starts to blink with a fully-charged battery as soon as possible. WARNING indicator and TALLY lamp blink Remaining battery power display: Alarm sound beeps BATT lamp blinks Viewfinder

Recharging

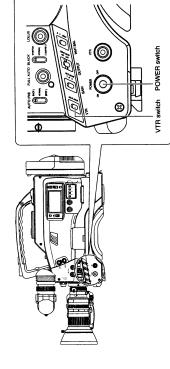
Recharge the battery pack after completely discharging. If recharging is repeated with incomplete discharging, this could cause lowering of the battery capacity.

recharging and discharging, once discharge the battery pack completely, then recharge it to regain the battery capacity. If the battery capacity is lowered by repeating incomplete

 If the battery pack is recharged with its internal temperature raised immediately after use, recharging may not be performed completely.

5. PREPARATIONS

5-1 Turning the Power ON

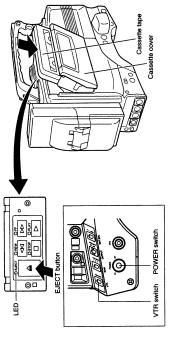


- T. Turn the POWER switch to ON.
- The power is then supplied to the unit.
 Video image is output to the viewfinder.
- The display of the VCR section is turned on.
- The DY-90 operation mode may differ when the power is turned ON or when the cassette is loaded depending on the setting of the VTR switch as follows: 2. Select the DY-90 operation mode with the VTR switch.

VTR switch setting	DY-90 operation mode
SAVE	DY-90 enters the SAVE mode (tape protect mode) and
	stops the drum motor. "SAVE" is displayed in the VCR
	operation display section in the Status 1 mode of the
	viewfinder. In this mode, the tape is effectively protect-
	ed.
	In this condition, press the VTR trigger button to start
	recording. However, the time required for this operation
	takes more than for that of the STBY mode.
STBY	When a recordable cassette tape is loaded, the DY-90
	enters the record-pause mode automatically. (the Drum
	motor is still rotating.)
	"STBY" is displayed on the Status 1 screen on the
	viewfinder.
	In this condition, pressing the VTR trigger button
	immediately starts recording

5. PREPARATIONS

5-2 Cassette Loading and Unloading



- A cassette cannot be loaded in or unloaded from the unit while it is in POWER OFF mode.
 Use a video cassette tape marked DIGITAL S.
 A S-VHS or VHS video cassette tape cannot be used with this unit. If you insert a S-VHS or VHS cassette in the unit, it will be ejected automatically

Loading the Cassette

- Turn the POWER switch to ON.
- 2. Press the EJECT button to open the cassette cover. The LED indicator above the EJECT button lights and the cassette cover opens.
- $oldsymbol{3}_{oldsymbol{ iny}}$ Insert a cassette tape after removing the tape slack.
- The tape is loaded automatically when the cassette cover is 4. Slowly close the cassette cover by pushing it in all the way.
- during tape loading and lights steadily after the The cassette indicator on the display blinks loading has been completed.
- The condition at the completion of loading is variable depending on the VTR switch and the REC switch on the back side of the cassette tape as shown below.

VTR switch	REC switch of Cassette Tape	Cassette Tape
	NO	34O
ТR STBY	Enters record-pause mode after back- spacing.	The unit enters stop mode.
AVE	In the record-pause mode the drum rotation is stopped.	

After the cassette cover is closed, it takes about 8 seconds before the unit can start recording or enter the stop mode.

- CAUTION

way. When the cassette cover is not closed completely, it is left in a half-locked state, in which the VGP section accepts more operation. In this case, push the cover again all the way to get it locked firmly. When the cassette is in place and the cassette cover is only half-locked, the [\infty] cassette indicator in the LCD display will not appear. When the cassette cover is properly locked, the indicator is displayed. When closing the cassette cover, be sure to push it in all the

Unloading the Cassette

- 1. Turn the POWER switch to ON.
- \pmb{Z}_{r} Press the EJECT button. \longrightarrow The LED indicator above the EJECT button lights and tape ejection starts.
- The cassette indicator on the display blinks during tape ejection and turns off after the ejection has been completed.
- It takes a few seconds before the cassette cover opens after the EJECT button is pressed.
- The cassette tape cannot be ejected during recording. Allow the unit to enter the record-pause mode first before pressing the EJECT button.
- 3. Take out the cassette tape.
 - 4. Close the cassette cover.

CAUTION

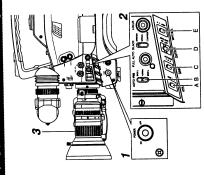
Do not leave the unit for a long period with the cassette cover open. Otherwise dirt or other foreign objects may enter the VCR sec-

tion, and cause malfunction

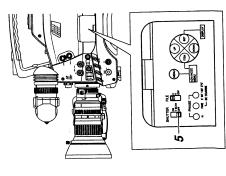
33

SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-1 Camera Control Settings for Adjustment







I. POWER ON

- First place a charged battery in the battery holder or connect DC power to the DC input.
 - 3. Set the POWER switch on the unit to ON. 2. Turn the AC power adapter on.

2. Side SWITCH positions

- A. Turn the VTR switch to the SAVE.
- C. GAIN switch; set to L. The L position is always 0 dB. D. OUTPUT (CAM/BARS) switch; set to CAM/•AUTO KNEE B. AUTO IRIS switch; set to NORMAL.
- E. WHT. BAL (Auto White Balance) switch; set to A or B.

3. AUTO IRIS ON

Initially set the lens iris to Automatic. (A mode)
Later take advantage of the Momentary Iris control to activate the camera's exposure system when needed.

FILTER turret

Choose the proper Filter selection for the lighting conditions.

Suitable Location	Indoor, dark outdoors	Outdoors	Outdoor under fine weather	The cross effect filter makes the highlight sections shine like crosses and reduces the contrast. The corresponding color temperature is 3200K.
FILTER	3200K	5600K	5600K+ND	EFFECT
	-	2	3	4

÷E-ver.

Suitable Location	Indoor, dark outdoors	5600K+1/4ND Outdoors under fine weather	Outdoors	5600K+1/16ND Outdoor under fine weather
FILTER	3200K	5600K+1/4N	5600K	5600K+1/16
1	-	2	က	4

5. SHUTTER positions Set to OFF position.

6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

Viewfinder Adjustment

6-2

Visibility adjustment

Rotate the eyepiece focusing ring so that the viewfinder screen ■ Visibility adjustment image is clearly visible.

Brightness and contrast adjustment

When the ambient brightness changes, the brightness and contrast of the viewfinder screen can be adjusted with the CONT and BRIGHT controls.

Peaking adjustment

Turning the PEAKING (contour adjustment) control makes the picture look sharper, making focus adjustment easier.

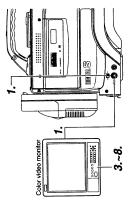
6-3 External Monitor Adjustment (U-ver.)

BRIGHT

PEAKING CONT

Display the color bar signal built in the camera head and adjust

the colors, contrast and brightness.



7. Connect a color video monitor to the MONITOR OUTPUT connector of the camera head. Set the switch to the CAM side of the [CAMVTR] switch of this unit.	2. Set the OUTPUT switch to BARS to output the color bar signal (SMPTE type color bars).	3. Set the monitor so that the screen turns entirely blue.

- s entirely blue.
- 4. Adjust the chroma control of the monitor so that there is no difference in brightness between ① and ⑧ or between ③ and ⑩ of the color bars.
 - ${\bf 5}$. Adjust the phase control of the monitor so that there is no difference in brightness between (§) and (§) or between (§) and (2) of the color bars.

MM

6. If the phase control adjustment above causes a difference in brightness between ① and ③ or between ② and ④ , restart from the chroma control adjustment in step 4.

0

0

- 7. Switch the monitor back to the standard screen (All of R, G and B will appear).
- Adjust the brightness by using the Brightness Adjusting control so that the color bar (® and (® disappear, and color control). bar @ becomes visible

Blue Blue Blue @@@@ #

eula 🕞

stnegsM @

Green

wolleY 🕙 etirtw 🕒

■ SMPTE type color bars

Black рөн 🥌

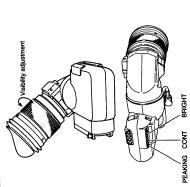
Black Cyan

Black Magenta ⊚ Cyan

The description hereinafter refers to the positions in the color bar screen using the numbers.

U-42

6-2 Viewfinder Adjustment



Rotate the eyepiece focusing ring so that the viewfinder screen Visibility adjustment

When the ambient brightness changes, the brightness and con-Brightness and contrast adjustment image is clearly visible.

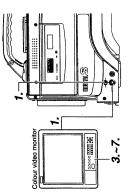
trast of the viewfinder screen can be adjusted with the CONT

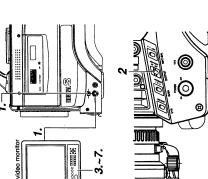
Peaking adjustment

and BRIGHT controls.

Turning the PEAKING (contour adjustment) control makes the picture look sharper, making focus adjustment easier.

6-3 External Monitor Adjustment (E-ver.)



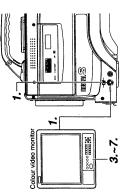


■ EBU type colour bars

 Black	⊚
eula	<u>©</u>
рен	9
Magenta	ၜ
 Green	•
Cyan	<u></u>
Yellow	@
 etirW	Θ

The colour bar screen has a configuration as shown above. The description hereinafter refers to the positions in the colour bar screen using the numbers.

E41



I_ Connect a colour video monitor to the MONITOR OUTPUT connector of the camera head. Set the switch to the CAM side of the [CAMVTR] switch of this unit. the colours, contrast and brightness.

Display the colour bar signal built in the camera head and adjust

Make sure that the monitor is terminated with 75 α before connecting the MONITOR OUTPUT connector. If it is not terminated with 75 α the video signal will not output when the power is on because of the power saving features equipped with this unit.

 $oldsymbol{2}$ set the OUTPUT switch to COLOUR BARS to output the colour bar signal (EBU type colour bars).

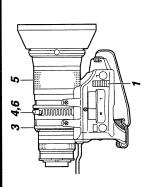
3. Set the monitor so that the screen turns entirely blue.

4. Adjust the chroma control of the monitor so that there is no difference in brightness between ① and ② of the colour bars.

5. Adjust the phase control of the monitor so that there is no difference in brightness between (3) and (5) of the colour bars. 6. If the phase control adjustment above causes a difference in brightness between (i) and (ii), restart from the chroma control adjustment in step 4. **7.** Switch the monitor back to the standard screen (All of R, G and B will appear).

6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-4 Back Focus Adjustment



Adjust the viewfinder for sharpness first. It is easier to adjust back focus when the subject is more than 3 3. Open the Iris ring to F1.4. If the illumination is too strong, 2. Set the Zoom mode to MANU (Manual). Set the Iris mode to M (Manual). lens is attached for the first time. meters from the subject.

It is only necessary to perform this when focusing is not correct in both the Telephoto and Wide-angle positions, such as when the

 $oldsymbol{4}_{oldsymbol{ iny}}$ Turn the zoom lever until the lens is completely telephoto.

reduce it or move to a darker place.

5. Focus on the subject. There is a specific chart that looks like a dart board which is helpful.

6. Set the lens to completely Wide-angle.

7 Loosen the back focus ring retaining knob.

 $oldsymbol{eta}_{oldsymbol{ ext{-}}}$ Adjust the back focus ring for the best possible focus.

 $oldsymbol{g}_{oldsymbol{ extit{-}}}$ Repeat steps 4 through 8 for fine adjustment

7,8,10

10. Tighten the back focus ring retaining knob to secure the



6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

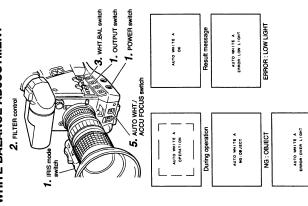
6-5 White Balance Adjustment

Since the color of light (color temperature) is variable depending on the light source, it is required to re-adjust the while balance when he main light source illuminating the object changes.

 Do not place any objects such as metal one, etc. that can produce a strong reflected light as this may cause an improper white - Note

When an object lit by a halogen lamp of which the color temperature is 3,200K is shot while using a the color temperature conversion filter set to 5,600K, a proper white balance adjustment and (FAM) Full Time Auto White balance cannot be carried out, in this case, change the setting of the color temperature conversion filter to 3,200K then carry out the white balance adjust-ment and (FAW) again.

WHITE BALANCE ADJUSTMENT



Two kinds of white balance adjustment results can be stored in memories A and B.

■ Adjustment procedure

- Set the following switches.

 Set the POWER switci to ON.

 Set the OUTPUT switch to CAM-AUTO KNEE OFF.
 - Set the IRIS mode switch of the lens to A (Auto).
- Set the FILTER control according to the current lighting.
- Set the WHT.BAL switch to A or B. arphi
- same lighting conditions as the target object and zoom in to Place a white object near the center of the screen under the fill the screen with white. 4.
- Tilt the AUTO WHT, ACCU FOCUS switch upward (to AUTO WHITE) once and release it. Ŋ,
 - "AUTO WHITE A, B OPERATION" is displayed on the viewfinder screen during the operation of the auto white balance adjustment circuit.
- "AUTO WHITE A, B OK" is displayed when the white balance has been adjusted properly.

Error messages NG:OBJECT

- Displayed when there is not enough white color on an object or the color temperature is not suitable
- Displayed when the light is low. Increase the lighting Illuminationthen re-adjust the white balance. ERROR: LOW LIGHT
- ERROR: OVER LIGHT
- Displayed when the light is excessively bright. Decrease the ighting illumination then re-adjust the white balance.

FULL-TIME AUTO WHITE BALANCE (FAW)

ERROR: OVER LIGHT

The FAW function adjusts the white balance value automatically This mode is convenient when you have no time to adjust the white balance or when the camera is moved frequently in and out of places under different lighting conditions. as the lighting condition changes.

Setting procedure

This item allows setting of the FAW function to one of the white balance switches, A, B or PRESET. Select "NONE" if the FAW The FAW function can be activated with item "FAW" on the function is not required ADVANCED MENU. See page 69.

single color or not enough white color.

• The accuracy of the FAW (Full-time Auto White balance) is FAW adjustment range, for example when it contains only a The FAW (Full-time Auto White balance) function cannot provide optimum white balance with an object outside the

CAUTION:

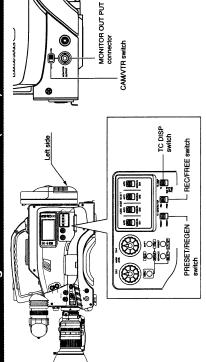
inferior to that of the manual white balance.

· When the power is switched ON in the FAW mode, it will take approximately 10 seconds for the FAW to complete

automatic adjustment. Do not perform any recording during these few seconds.

6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-6 Switch Settings of the VCR Section (U-ver.)



The DY-90 records 4 channels of audio signals to the PCM au-PCM Audio recording channel

According to the audio input connectors (DA1 - DA4 IN), it records to each PCM audio channel (DA1 - DA4). See page 46.

Select with the [LINE/MIC] switch for the audio input when recording the audio signal of the [DA1 IN] or [DA3 IN] connec-Audio input signal selection

Recording level adjustment selection tors on the rear panel. See page 46.

Select the recording level adjustment "AUTO" or "MANUAL" for each audio input connector separately. (See page 47.)

■ Video output signal selection

Select the video signals from the viewfinder and monitor connector with the [CAM/VTR] switch.

CAM: Regardless of which mode, the EE image from the

camera video signal is output.

Set to this position to shoot the image for back up use with the VCR connecting to the MONITOR OUTPUT

: The playback picture is output during the playback ٤

The EE image from the camera is output during other modes except PLAY mode. Set it to this position for ordinary use

■ VCR setup menu setting

Select whether the lower frequency components of the audio signal is attenuated or not for each audio input signal. Set to "ON" when eliminating the wind noise of the micro-AUDIO LOW CUT SELECT (DA1 TO DA4)

LONG PAUSE TIME SELECT

Select the time (in minutes) until the DY-90 enters the tape protection mode (drum rotation stops) when the recordpause mode is continued for long time.

Select an image to be viewed in the viewfinder or monitor during backspacing in the Record-pause mode. (Effective only when the [CAM/VTR] switch is set to "VTR".) BACK SPACE MODE SELECT

For details of setup menu, see page 64.

Setting the time code recording function

ing. Set the switches in the TC GENERATOR block according to applications. The unit records SMPTE-standard time code during record-

 To record a time code as set in the built-in time code generator: Set the PRESET/REGEN switch to PRESET.
 Set the REC/FREE switch.

If it is required to record continual time codes across dif-

ferent scenes, set the switch to REC.

and set the framing mode of the time code generator to Open the setup item "TCG SELECT DROP/NON-DROP" Set the VCR setup menu

To record a time code in continuation from the existing time drop frame or non-drop frame mode. code on tape

 When recording the time code slave-locked to the external Set the PRESET/REGEN switch to REGEN

time code generator.

 Set the PRESET/REGEN switch to PRESET.
 Set the REC/FREE switch to FREE.
 Setting the "U-BIT SLAVE ON/OFF" switch in the setup menu mode: Set to ON when the user's bit is also slave locked at the same time.

The time taken to enter record mode from record-pause mode is variable depending on the PRESET/REGEN switch position.

When set to PRESET : Approx. 0.8 second When set to REGEN : Approx. 1.5 second

This switching will causes a shift in the tape position for the REC PAUSE. Therefore, the unit generates a switching sound. When the PRESET/REGEN switch is switched after having started recording by pressing the VTR trigger button of the camera, the new setting remains valid in subsequent record ing operations. For details on the time code operations including time code presetting, see "TIME CODE OPERATION" on page 55.

The sub-time code is used to record the date and

For the setting of the date and time data, see page 61.

SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-7 PCM audio recording channels for audio input signals (U-ver.)





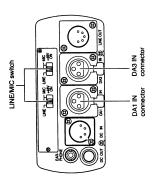
The DY-90 is equipped with 4 audio input connectors (DA1 IN - DA4 IN) to record 4 channels of audio signals. As shown in the list below, the signals from each of the audio input connectors (DA1 IN - DA4 IN) are respectively recorded on each of the PCM audio channels (DA1 - DA4) of the tape.

	DA4	DA4 IN (MIC 1 IN) Connector
ording Channel	DA3	DA3 IN Connector
PCM Audio Recording Channel	DA2	DA2 IN (MIC IN) Connector
	DA1	DA1 IN Connector

- The sound on the DA1/DA2 or DA3/DA4 channels is output during playback.(can be selected with the AUDIO MONITOR
- The audio signals of the DA1 IN and DA2 IN connectors are only recorded on the linear track of the tape for audio search.

When the tape is in playback with the BR-D80U, BR-D40U or BR-D750U series, etc. which are not compatible with 4-channel audio signal output, the sound of the DA1 and DA2 channels only are output. - Note:

6-8 Audio Input Signal Selection (U-ver.)



Selection of Rear Audio Input Connectors

Select the audio signal input to the AUDIO INPUT connector using the LINE/MIC switch. Set for DA1 IN and DA3 IN con-

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일

■ DA4 (MIC 1) IN Connector

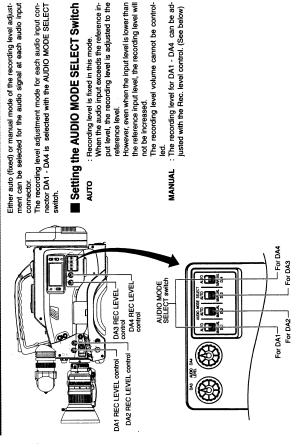
When a stereo microphone is connected, the sound on the L channel only is recorded

Compatible JVC microphones are:

• MV-P616 (Monaural)
• MV-P612 (Stereo/Monaural): Set the microphone mode switch to "Monaural"

6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-9 Recording Level Adjustment (U-ver.)



: Recording level is fixed in this mode. When the audio input exceeds the reference input level, the recording level is adjusted to the However, even when the input level is lower than reference level.

the reference input level, the recording level will The recording level volume cannot be controlnot be increased.

: The recording level for DA1 - DA4 can be adjusted with the Rec. level control. (See below)

MANUAL

■ Manual Recording Level Adjustment

Recording level can be adjusted manually when the DY-90 is in the record, record-pause or stop mode.

- 1. Set the AUDIO MODE SELECT switch to "MANUAL" according to the input signal to be manually adjusted.
- Select the audio level meter display mode for the display and viewfinder (DA1/DA2 or DA3/DA4 indication) using the AUDIO MONITOR switch.
- audio input. to be adjusted.

 Adjust so that the peak level does not exceed the -3dB point when the loud sound is input.

Rotate the Rec level control corresponding to the required

 ω

- With microphone input, since the limiter circuit is activated, the recording level does not exceed 0 dB even if the Rec level control is turned up.

phone is not connected, increasing the recording level could cause the noise from the input connector to be recorded on the tape. When the microphone is not connected to the DA1 or DA3 INPUT connector on the rear panel, set the LINE/MIC panel is set to "MIC", be sure to check that the microphone is connected to the DA1 or DA3 INPUT connector. If the micro-When the DA1 or DA3 INPUT LINE/MIC switch on the rear switch to "LINE" or lower the Rec level control.

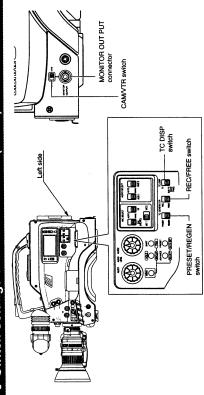
: Set to this position when connected to audio equipment, etc. Set to this position when using the monaural Set to this position when a microphone requiring +48 V DC power supply is connected. (Such as Connect a monaural microphone to the DA4 (MIC 1) IN con-The reference input level is -60 dBs. The reference input level is +4 dBs. JVC MV-P615.) microphone nectors separately. MIC +48 V

 Audio level
 Upper: DA1 or DA3
 Lower: DA2 or DA4 12.4V Viewfinder Status 1 mode DA1 Indication level (reference) AUDIO MONITOR – switch -89-54

E-45

6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-6 Switch Settings of the VCR Section (E-ver.)



Audio input signal selection

Select the audio signal for the microphone connector on the front panel or the AUDIO INPUT connector on the rear panel with the AUDIO SELECT switches. (See : page 45.) PCM audio channel distribution for audio input signal Confirm the channel distribution of the audio input signal onto the four PCM audio channels (DA1 - DA4). (See page 46.)

Recording level adjustment selection

Select the recording level adjustment "AUTO" or "MANUAL" for each audio input connector separately. (See page 47.)

Video output signal selection

Select the video signals from the viewfinder and monitor connector with the [CAM/TR] switch.

CAM : Regardless of which mode, the EE image from the

Regardless of which mode, the EE image from the Set to this position to shoot the image for back up use with the VCR connecting to the MONITOR OUTPUT camera video signal is output.

: The playback picture is output during the playback connector. 뚬

The EE image from the camera is output during other modes except PLAY mode. Set it to this position for ordinary use

VCR setup menu setting

Select whether the lower frequency components of the audio Set to this position when eliminating the wind noise of the signal is attenuated or not for each audio input signal. AUDIO LOW CUT FRONT/AUDIO LOW CUT REAR

LONG PAUSE TIME SELECT

Select an image to be viewed in the viewfinder or monitor Select the time (in minutes) until the DY-90 enters the tape protection mode (drum rotation stops) when the recordpause mode is continued for long time. BACK SPACE MODE SELECT

For details of setup menu, see page 64.

during backspacing in the Record-pause mode. (Effective

only when the [CAM/VTR] switch is set to "VTR".)

Setting the time code recording function

The unit records EBU-standard time code during recording. Set the switches in the TC GENERATOR block according to applications.

 To record a time code as set in the built-in time code generator: Set the PRESET/REGEN switch to PRESET.
 Set the REC/FREE switch.

If it is required to record continual time codes across different scenes, set the switch to REC.

 Set the PRESET/REGEN switch to REGEN. code on tape:

To record a time code in continuation from the existing time

When recording the time code slave-locked to the external time code generator

Set the PRESET/REGEN switch to PRESET.
 Set the RECHET switch to FREE.
 Setting the "U-BIT SLAVE ONLOFF" switch in the setup menu mode: Set to ON when the user's bit is also slave-

The time taken to enter record mode from record-pause mode locked at the same time

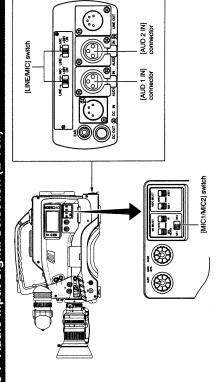
is variable depending on the PRESET/REGEN switch position. When set to PRESET : Approx. 0.8 second : Approx. 1.5 second When set to REGEN This switching will causes a shift in the tape position for the REC PAUSE. Therefore, the unit generates a switching sound. When the PRESET/REGEN switch is switched after having started recording by pressing the VTR trigger button of the camera, the new setting remains valid in subsequent recording operations. For details on the time code operations including time code presetting, see "TIME CODE OPERATION" on page 55.

■ The sub-time code is used to record the date and time data.

For the setting of the date and time data, see page 61.

6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-7 Audio Input Signal Selection (E-ver.)



Selection of Front Microphone Connector

■ Selection of Rear Audio Input Connectors

 Select the audio signal input among MIC 1 and MIC 2 connectors on the front panel using the [MIC1/MIC2] switch. MIC 1: Inputs the audio signal from the microphone connected to the MIC 1 connector.

MIC 2: Input the audio signal from the microphone connected to MIC 2 connector. When the microphone of the MIC1 connector is used;

according to the microphone type (monaural or stereo) to Set the [FRONT MIC1 SELECT] of the SETUP MENU be connected. (See page 62)

FRONT MIC 1 SELECT

no : Set to this position when using a monaural microphone.

st : Set to this position when using a stereo microphone. * There is no need to set this menu switch when connecting

a microphone to the MIC2 connector.

Select the audio signal input to the AUDIO INPUT connector using the [LINE/MIC] switch. Set for AUD-1 and AUD-2 connectors separately.

LINE : Set to this position when connected to audio LINE. : Set to this position when using the monaural The reference input level is +4 dBs. equipment, etc. microphone. S

Set to this position when a microphone requiring +48 V DC power supply is connected. (Such as

MIC +48 V

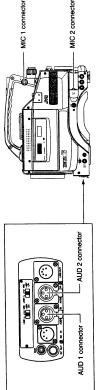
JVC MV-P615.)

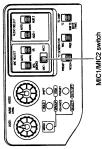
The reference input level is -60 dBs.

Refer to page 46 for the Allocation of Audio Input signals Recorded onto the PCM Audio Channel.

6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-8 PCM Audio Channel Allocation of Audio Input Signal (E-ver.)





A total of four input connectors are provided for audio input.

To which PCM audio channel (DA1 to DA4) the audio signal to be recorded depends on the type of camera microphone connected to the MIC1 or MIC2 connectors which are on the front panel of the camera. Refer to the settings on the list below Set the [MIC1/MIC2] switch and [FRONT MIC1 SELECT] on the VCR SETUP MENU according to the type of camera microphone to be connected. Refer to page 64 on the VCR SETUP MENU.

Allocation of Audio Input Signals Recorded onto PCM Audio Channels

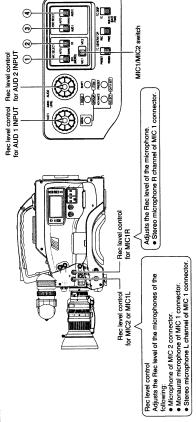
Microphone connector to be	Setting	ing		PCM Audio channel	o channel	
used and microphone type	[MIC1/MIC2] switch	Menu	DA1	DA2	DA3	DA4
MIC 1 connector (6 Pin) Monaural microphone (MV-P616, etc.)	MIC 1	no (MONO)	AUD1	MIC1	AUD2	AUD2
MIC 1 connector (6 Pin) Stereo microphone (PV-P612, etc.)	MIC 1	St (STEREO)	AUD1	AUD2	MIC1L	MIC1R
MIC 2 connector (XLR, 3 Pin) Monaural microphone (PV-P615, etc.)	MIC 2	Not provided	AUD1	MIC2	AUD2	AUD2

- During playback the audio signal of the DA1/DA2 or the DA3/DA4 channel is output. The audio signals on the DA1 and DA2 channels are always recorded on the linear track of tape for audio search

When the tape is in playback with a VCR (BR-D80E, BR-D40E or BR-D750E series, etc.) which is not compatible with 4 channel audio signal output, the sound of DA1 and DA2 only are output.

6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-9 Recording Level Adjustment (E-ver.)



Select whether the recording level adjustment is set to Auto mode or Manual mode for each audio input connector using the AUTO/ MANUAL select switches.

- : Recording level is fixed. In this mode, the Rec level control does not function. When set to AUTO
- When set to MANUAL: Recording level can be adjusted using the Rec level controls for each audio

Select switch for MIC1R
This function is available to the R-channel of the

microphone of MIC1 connector. Select switch for AUD 1 INPUTSelect switch for AUD 2 INPUT

Stereo microphone L channel of MIC1 connector.

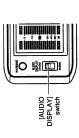
Monaural microphone of MIC1 connector.

Microphone of MIC2 connector

Select switch for MIC2 or MIC1L.
 This function is available to the following microphones.

■ Recording level AUTO/MANUAL select switch

Manual Recording Level Adjustment



Viewfinder Status 1 mode

Audio level 12.4V F5.6 STBY

Upper: DA1 or DA3 Lower: DA2 or DA4 Indication level (reference)

2. Select the audio level meter display mode for the display and viewfinder (DA1/DA2 or DA3/DA4 indication) using the AUDIO the input signal to be manually adjusted.

7. Set the AUTO/MANUAL switch to "MANUAL" according to

Recording level can be adjusted manually when the DY-90 is in

the record, record-pause or stop mode

DISPLAY switch.

3. Rotate the Rec level control corresponding to the required

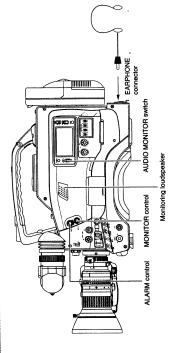
- Adjust so that the peak level does not exceed the -3dB point when the loud sound is input. audio input. to be adjusted.
- With microphone input, since the limiter circuit is activated, the recording level does not exceed 0 dB even if the Rec level control is turned up.

is set to "MIC", be sure to check that the microphone is connected to the AUDIO INPUT connector. If the microphone connector on the rear panel, set the LINE/MIC switch to "LINE" is not connected, increasing the recording level could cause the noise from the input connector to be recorded on the tape. When the microphone is not connected to the AUDIO INPUT When the AUDIO INPUT LINE/MIC switch on the rear panel or lower the Rec level control.

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6. SETTING AND ADJUSTMENTS BEFORE SHOOTING

6-10 Monitoring Audio During Recording



The audio input during recording, record-pause or stop mode can be monitored through the monitoring loudspeaker or earphone

- The monitoring audio is not output from the loudspeaker while the EARPHONE jack is in use
- Select the PCM audio channel to be monitored using the AUDIO MONITOR switch.

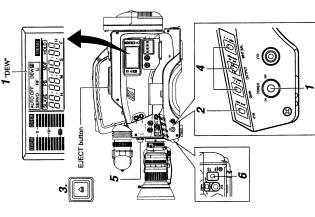
DA1/DA2: Outputs the audio signal input to the DA1 and DA2 PCM audio channels.

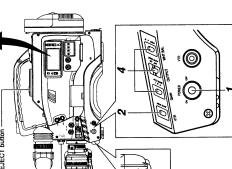
DA3/DA4: Outputs the audio signal input to the DA3 and DA4 PCM audio channels.

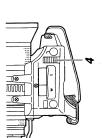
- . The loudspeaker or earphone outputs an alarm tone in the case of an abnormal condition occurring with the VCR sec- The MONITOR control adjusts the monitoring volume.
 - An alarm tone is also output when the tape end is reached or when the battery is running down. The alarm tone volume can be adjusted with the ALARM control. For details on the alarm tone, see pages 81 and 82.
- Do not increase the audio monitoring volume too high, otherwise howling with the camera microphone may occur.

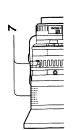
7. SHOOTING OPERATION

7-1 Basic Recording Operation









Turn the POWER switch to ON.

Power is then supplied to the unit.

Check that the condensation display "DEW" does not appear on the display. If it is lit, wait until the indicator goes out.

2. Set the VTR switch to the STBY position.

pressing the VTR trigger button will start recording. However in this case, it is necessary to wait for a short Even when the VTR switch is set to the "SAVE" position, time until the recording actually starts. For SAVE mode, see page 51. 3. Press the EJECT button to open the cassette cover, insert a is set to ON. When the cassette cover is closed, the tape is loaded and cassette tape properly and close the cassette cover gently.

• Ensure that the REC switch on the back side of the cassette

 Use a cassette tape marked DIGITAL S. An S-VHS or a the unit enters record-pause mode

- VHS cassette cannot be used with this VCR.

 After the cassette cover is closed, it takes about 10 seconds before the unit is ready for recording.
- 4. Set the switches as required.
 OUTPUT: "CAM/AUTO KNEE OFF"
 WHT:BAL: "A" or "g"
 Committee of the

: Sensitivity suitable for the subject Set the IRIS switch of lens to "A". $oldsymbol{5}$. Select the FILTER according to the lighting condition.

: For shooting indoors or Position 1 (3200K) • U-ver.

is not sufficient

: For shooting outdoors on a : For shooting outdoors Position 2 (5600K) -Position 3 (5600K + 1/16ND)

sunny day. The cross effect filter Position 4 (EFECT)

makes the highlight sections shine like crosses and reduces the contrast. The corresponding color temperature is 3200K.

For shooting indoors or outdoors when illumination Position 1 (3200K) • E-ver.

: For shooting outdoors on a is not sufficient Position 2 (5600K + 1/4ND)

: For shooting outdoors on a : For shooting outdoors sunny day Position 3 (5600K) Position 4 (5600K + 1/16ND) 6. Adjust the white balance. (See page 44 for U-ver. 43 for E-ver..)

7 Point the camera at the subject and determine the angle of view and focus with the zoom lever and the focusing ring.

8, 9, 10) CAM/VTR switch 8 TALLY lamp

When the VTR trigger is pressed, the unit enters the record-pause mode after ewinding the tape for about 1 to 1.5 second (back-spacing). The size section recorded on the tape is buring the back-spacing, the lest section recorded on the tape is played in the reverse direction. However, during play in the re-verse direction, block noise appears. You can use this as a refer-ence for confirming whether recording has been made or not. When the CAMVTR switch is set to VTH* and the setup menu-lam "BACK SPACE MODE SELECT" is set to "PB", the re-verse playback image is output to the MONITOR OUTPUT connector and the velvefinder. To stop recording, press the VTR trigger again. The unit enters the Record-Pause mode. e,

10. To restart recording: Press the VTR trigger on the camera.

Enter record-pause mode and perform the following operations as required. ■When it is required to unload the cassette tape 11. End recording.

■When it is required to put the unit in save mode Press the EJECT button.

8, 9, 10 VTR trigger

Drum rotation stops and the DY-90 enters the tape protection/power-saving mode Set the VTR switch to SAVE.

12. When shooting is completely finished, ejects the cassette and turn the power off.

- The STOP and EJECT buttons do not function during recording. These buttons function during the record-pause mode.
- The REC/ALARM indicator (green) in the viewfinder blinks until recording actually starts. This is not due to any defect of the unit, but indicates that the VCR is preparing for

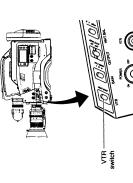
REC OBATT ALARM O—

- If the VTR trigger button is pushed very quickly and recording, repeatedly, the velevinder record tally light may blink incorrectly and the DV-80 does not enter the record mode. To clear this condition, furn the POWER switch to OFF.

 A neat transition to the next recorded scene cannot be guaranteed if you end a recording by setting the POWER switch to OFF be sure to enter record-pause mode before switching the unit OFF.
 - After operating in the record-pause mode, wait for two seconds or more before switching off the power. If the power is switched off immediately after the record-pause mode is initiated, it automatically starts searching the end of the last recorded section when the power is switched to ON again, this takes approximately ten seconds. During this operation, entry to the record mode is possible but ed out until the search is completed recording cannot be can
- The power consumption can be reduced by setting the LIGHT switch on the display to OFF. perform test shooting to ensure that normal recording is Before recording a scene which is particularly important

8 TALLY light

7-2 Save Mode



record-pause mode. However the record-pause operation condition differs depending on the setting of the VTR switch. When a recordable cassette tape is loaded, the DY-90 enters the

• VTR switch setting STBY: The DY-90 enters the record-pause mode, and the drum

A "STBY" indication appears in the VCR operation mode In this condition, pressing the VTR trigger button display in the viewfinder. (Status 1 mode) is rotating at this time. (Standby mode)

SAVE: The DY-90 enters the record-pause mode, however, the drum is not rotating. (SAVE mode). immediately starts recording. The tape is protected.

A "SAVE" indication appears in the viewfinder during (Status 1 mode).

Recording from the Save mode

- However, in this case, there are several seconds of interval In the save mode, pressing the VTR trigger button will start before the DY-90 starts recording.
- Pressing the VTR trigger button again stops recording and the DY-90 enters the save mode again.

DA1----+--DA2----+---(Status 1 mode) £17

Figure shows U-ver.

7-3 If Unit is Left in Record-Pause (Standby) Mode

When the unit has remained in record-pause (standby) mode for about 30 minutes, the unit enters tape protect mode, in which the drum rotation is stopped automatically and the tape tension is

The time until the unit enters the tape protect mode after it is put to record-base mode can be set with the setup menu item "LONG PAUSE TIME SELECT" to 1 minute, 5 minutes or 30 minutes. (See page 64)

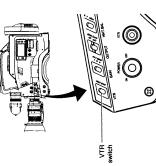
- To start recording from tape protect mode, press the VTR trigger button of the camera; the drum starts to rotate and recording starts in about 8 seconds.
- the VTR trigger button of the camera twice; the drum starts to To return to record-pause mode from tape protect mode, press

7. SHOOTING OPERATION

Once recording has started, the tally lamps on the VCR section and the viewfinder tally light red, and the REC indication in the viewfinder lights green. 8. Press the VTR trigger on the unit or lens to start recording.

Note:

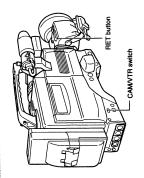
During time code generator use in the PRESET mode the sound trigger switch may be recorded when the VTR trigger on the lens is pressed. To avoid this, use the VTR trigger located at the power switch side.



Viewfinder VCR operation status display STBY SAVE

7. SHOOTING OPERATION

Recording Check Function) 7-4 Checking Recorded Contents in Record-Pause Mode (



This function is available even when the DY-90 is in the save mode (VTR switch set to SAVE position).
 After operation is finished, the DY-90 enters the save mode.

In the record-pause mode, the last recorded portion can be played

 The recorded contents can be checked with the viewfinder or the monitor connected to the MONITOR OUTPUT connector. back for approx. 2 seconds.

■Set the CAMVTR switch to the "VTR" position beforehand.

• In the viewfinder or on the monitor connected to the MONITOR OUTPUT connector, the video image from the VCR section is output. I. In the record-pause mode, press the RET button on the The tape is slightly rewound and played back for approx. 2 camera lens section.

After playback is finished, the tape is returned to the position at which the RET button is pressed and the record-pause mode resumes. seconds

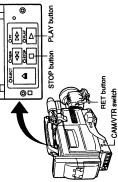
■When the RET button is kept pressed, the tape is rewound and played pack for approx. 10 seconds at maximum.

7-5 Cueing the Scene Change Point

When successive recordings are made, cue the scene change point before starting recording.

After the tape is run
 When the cassette tape is ejected and loaded again

When recording from the middle of the recorded tape



- · If the VTR trigger button is pressed in the middle of the function is given priority so a neat transition to the next scene automatic scene change cueing operation, the VTR trigger cannot be guaranteed
 - Be sure to use the VTR trigger button to end every recording (because a pilot signal for ensuring a neat transition to the next scene is recorded when this is done.)
- cueing cannot be guaranteed if the recording time before The proper functioning of the automatic scene change entering the record-pause mode is less than 2 seconds.

- ■To check the playback image with the viewfinder or monitor, set the CAM/VTR switch to the "VTR" position.
- $m{I}_{m{s}}$ Press the STOP button to release the record-pause mode.

Set the PRESET/REGEN switch to "REGEN" for continuous

recording of the time code.

- 2. Press the PLAY button to start playback.
- press the STOP button at the point where you want to start $oldsymbol{3}_{oldsymbol{-}}$ While watching the image on the viewfinder or on the monitor, recording.
- Press the RET button on the camera lens section. 4.
- ■When the scene change pilot signal is detected, the DY-90 Rewind the tape for playback of approx. 2 seconds, and search the scene change pilot signal while the tape is played 5
 - enters the record-pause mode from which the next recording When the scene change pilot signal is not detected, the is to be started.
 - DY-90 enters the record-pause mode using the point as the scene change point at which the STOP button is

8. PLAYBACK MODE

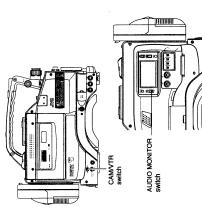
Setup

8-1 Playback Procedure

• Set the CAMYTR switch to the "VTR" position. In this mode, the viewfinder and MONITOR OUTPUT connector output the

■Video output signal selection

playback image of the VCR section Audio output signal channel selection



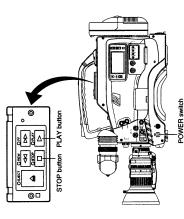
 Select the audio output channel using the AUDIO MONITOR DA1/DA2: Outputs the audio signal from the DA1 and DA2 DA3/DA4: Outputs the audio signal from the DA3 and DA4

playback switch. Audio output signals are output from the AUDIO OUTPUT

channels.

connector (5-pin), monitor speaker and earphone jack.

During playback, the audio signal from the PCM audio channels is not output simultaneously. Two channels only are output during



Operation

- 1. Turn the POWER switch to ON.
- IWhen a recordable cassette tape (with REC switch on the back of the cassette set to ON) is loaded, the VCR section enters the record-pause mode (STBY or SAVE mode). 2. Load the recorded cassette tape correctly.
- -- The PLAY indicator lights and playback starts. Press the PLAY button
- To stop playback, press the STOP button.

 The STOP indicator lights and the VCR section enters the stop mode. 4

- This unit is not capable of a manual tracking adjustment.
 The tracking is adjusted automatically during playback.
- When playing back the tape recorded with another VCR, digital noise may be generated.
 - This unit is not capable of still image playback.
- An S-VHS or a VHS cassette tape cannot be used with this
- · When the automatic tracking function is activated at the start of the playback mode, digital noise may appear on the playback image
- At the start of the playback mode, the audio signal from the linear tracks will be output. When the tape running is
- linear tracks. For this, even when the VCR section is in the DA3/DA4-channel output mode, only the DA1 and DA2 channel audio signals recorded on the linear tracks are stabilized, the PCM audio signal is output.
 Only the DA1 and DA2 channel signals are recorded on the output at the start of the playback mode.

If it is set to SUB TC, sub-time codes (date and time data) will

■Set the TC DISP switch to "TC".

be displayed.

■Set the COUNTER switch to "TC" or "UB".
TC : Time codes are displayed.
UB : User's bit data of time codes are displayed.

PLAYBACK MODE

8-2 Fast-Forward, Rewind



■Press the FF button in stop mode to fast forward tape and press the REW button in stop mode to rewind tape.

In fast forwarding and rewinding, the EE image and EE audio signal are output.

Press the STOP button to stop fast forwarding or rewinding.

When the tape approaches the end during fast forwarding or rewinding, the tape speed decelerates to protect the tape.



Press the FF button in play mode to search the tape in the Press the REW button in play mode to search the tape in the forward direction at about 2 to 6 times the normal speed. reverse direction at about 1 to 6 times the normal speed.

Press the PLAY button to resume normal playback.

When the mode is changed from search to play mode, characters are displayed for a moment on the viewfinder screen. This is not a malfunction.

- The audio recorded on the linear track of the tape is reproduced during the search.
 Regardless of the setting of the AUDIO MONITOR switch, the audio signals from DA1 and DA2 channels are output.
 Video noise may be observed or the image may become unstable during the search, but this is not a malfunction.

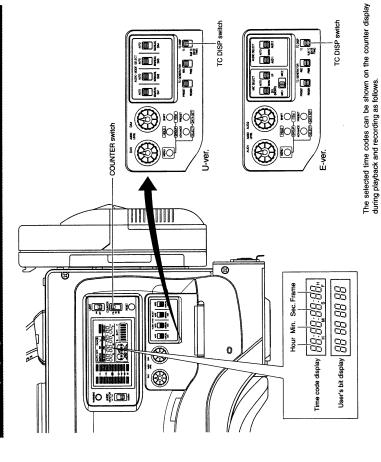
TIME CODE OPERATION

This unit records 2 time code areas on the tape; the main time code area which contains time codes for use as time data in editing, etc., and the sub-time code area which can optionally contain the date and time data.

- The main time code area contains the recording of SMPTE-standard time codes and user's bits. In play mode, the reproduced time codes or user's bits are shown on the counter display.
- The sub-time code area contains the recording of the date and time data, which can also be shown on the counter display during playback.
- Neither the main time code nor sub-time code data is output through the MONITOR OUTPUT connector.
 The generated time-codes are output from the TC OUT connector.

The following description begins with the handling method of the main time code. That of the sub-time code will be described from page

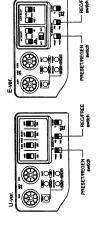
9-1 Displaying Time Code



9. TIME CODE OPERATION

9-2 Presetting and Recording of Time Code

The time code or user's bit data to be recorded onto the tape can be preset to a desired value



■Setting the switches in the TC **GENERATOR block**

- Set the PRESET/REGEN switch to PRESET.
- Set the REC/FREE switch as follows.
- REC : The data preset in the time code generator runs only during recording. Use this setting to record continual time codes across scenes when recording them one
- after another. FREE: The data starts to run from the moment it has been

- REC/FREE switch

preset in the time code generator

U-ver. only

Setup menu setting

Select the framing mode of the time code generator with setup menu item "TCG SELECT DROP/NON-DROP".

dF: The time code generator runs in drop frame mode. Use this setting when putting importance on the recording time.

> about 29.97 frames, while the number of frames assumed for use in compensates for this difference by dropping frames 00 and 01 at every minute whose figure cannot be divided by 10. The non-drop

frame mode ignores the above difference and does not drop frames.

With the NTSC format, the actual number of frames per second is time code processing standard is 30 frames. The drop frame mode

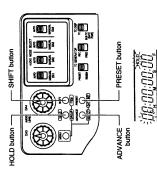
Drop frame/Non-drop frame modes

nF: The time code generator runs in non-drop frame mode. Use this setting when putting importance on the number of

frames.
The NDF indicator on the LCD display lights in non-drop frame mode.



TIME CODE PRESETTING PROCEDURE



Display the time code on the counter display. Set the COUNTER switch to TC.

Time code up to 23 hrs. 59 min. 59 sec. 29 frames can be

Put the time code generator in preset mode. Press the HOLD button.

The HOLD indicator lights on the display to indicate the preset mode. The first digit of the counter display blinks.

The value of the blinking digit changes. Set the value of the blinking digit. Press the ADVANCE button. e,

The blinking digit changes. 4. Change the blinking digit. Press the SHIFT button.

Set the desired value for all digits. Repeat steps 3 and 4 for each digit. Ŋ, 6

ָרָם: מסיים מסיים (מוֹיַבְּינָם: מוֹיַבְּינָם: מוֹיַבְּינָם: מוֹיַבְּינָם: מוֹיַבְּינָם: מוֹיַבְּינָם: מוֹיַבְי

12:34:26:20

Preset the set data in the memory.

The set data is saved as the time code generator value.

After the above operation, the HOLD indicator disappears from the display, the counter stops blinking and the time code If the REC/FREE switch is set to FREE, the time code starts Press the PRESET button.

If you preset a wrong time code, perform steps 3, 4, 5 and 6 again.

9. TIME CODE OPERATION

Presetting and Recording of Time Code (Cont'd) 6-2

PRESETTING USER'S BIT DATA



■Display user's bit data on the counter display and perform the

same procedure as the time code presetting procedure.

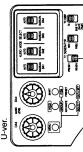
• The user's bit can be specified using numerals or alphabets from 0 to F for each digit.

Pressing the RESET button in preset mode resets the time code or user's bit data to 00 00 00 00.
 If you have pressed the HOLD button by mistake, press the HOLD button again to return to the previous display.

9-3 Recording Time Codes Continuously From Time Codes Recorded on Tape

The unit also incorporates a time code reader. Therefore, when the unit enters record mode from record-pause mode, it can read the time code data recorded on tape and record continual time codes after it. The recorded user's bit data is identical to the user's bit data recorded on tape.

To make this possible, set the switches in the TC GENERATOR block as follows before starting recording



 Set the counter display to display time codes or user's bit data.

The time code run mode becomes unrelated to the REC/ FREE switch settings. Set the PRESET/REGEN switch to REGEN.

 The framing mode of the time code generator becomes automatically identical to the mode used by the time codes recorded on the tape (drop frame or non-drop frame mode).

PRESET/REGEN switch

When the PRESET/REGEN switch is set to REGEN, the time taken for entering record mode from record-pause mode becomes slightly longer.

PRESET/REGEN switch E-ver.

9. TIME CODE OPERATION

Recording Time Codes by Slave-Locking the Built-in Time Code Generator with the External TCG **7-6**

The built-in time code generator can be synchronized (slave-locked) with the SMPTE/EBU-standard LTC time code signal which is input through the TC IN connector. Once the slave locking has been carried out, the built-in time code generator runs even when the external time code input stops. Even when the power is swirched off, it continues to run on the backup lithium battery.

TC IN connector GENLOCK IN connector When the power is switched ON while external sync signal is input, the screen moves in a vertical direction for a few seconds. This is not a malfunction. LTC time code signal REF video signal REF video signal External time code

- Input the reference video signal into the external time code generator and the GEN LOCK IN connector of this unit.
 - $oldsymbol{2}$. Display time code on the counter display.
- Set the switches in the TC GENERATOR block as follows.
 Set the PRESET/REGEN switch to "PRESET".
 Set the REC/FREE switch to "FREE".
 - Setup menu setting
- Set setup menu item "L-BIT SLAVE ON/OFF" as required.

 Set to "ON" if you want to also slave lock the user's bits to the external time code generator.

the input time code (drop frame or non-drop frame mode). The NDF indicator lights on the display if the framing mode The framing mode is set automatically to the same mode as is the non-drop frame mode. U-ver. only

→ The built-in time code generator is slave-locked with the input external time code data. The SLAVE indicator lights on the display. 4. Set and operate the external time code generator



* If the external time code generator phase is not genlocked with the phase of the camera video signals, the "SLAVE" display will flicker.

 Once slave locking has been made, the built-in time code generator keeps on running even when the external time code generator is stopped.

Note:

will not take place.
Do not connect or disconnect slaves during recording as this may disturb the servo lock. While the REC/FREE switch is set to "REC", slave-locking

Multi-Camcorder Master-Slave Connection

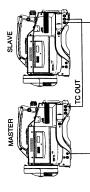


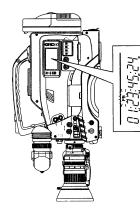
figure left.

When connecting several DY-90s as slaves, input the REF video signal to GENLOCK IN connectors of all these units from the sync When there is only one slave DY-90, connect it as indicated in the signal generator

9-5 Reproducing Time Codes

The unit incorporates a time code reader which outputs the time codes and user's bit data recorded on the played tape is displayed on the counter display. The played time codes and user's bit data are not output from the TC OUT and MONITOR OUTPUT connector.

9. TIME CODE OPERATION



■Reproduce time codes.
Press the PLAY button.

The PB indicator lights on the display and the reproduced time code or user's bit data is displayed.

■Set the counter display to display time codes or user's bit data

28

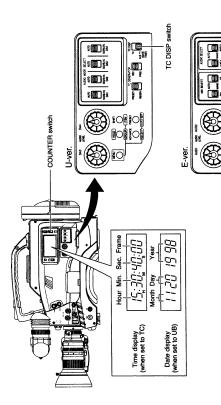
MONITOR OUT

9. TIME CODE OPERATION

9-6 Sub-Time Code (Date, Time)

The unit records a sub-time code area as an additional time code recording area to the main time code area. The sub-time code area contains data on the date and time of the day.

DISPLAYING SUB-TIME CODE



The date and time data based on the sub-time codes can be displayed during playback and recording.

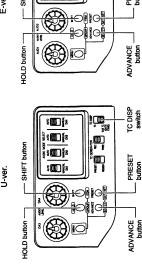
■Set the TC DISP switch to "SUB TC"

When set to TC : Time data (hour, minute, second, frame) is Set the COUNTER switch to "TC" or "UB"

displayed. When set to UB: Date data (month, day, year) is displayed.

SETTING THE DATE AND TIME

The set date and time data is stored in the sub-time code area on tape. The set date/time data will continue the counting on the backup lithium battery, even when the power is switched off.



TC DISP switch Tronger In - SHIFT buttor 23 23 8 PRESET button ADVANCE button

9. TIME CODE OPERATION

(Cont'd) 9-6 Sub-Time Code (Date, Time)

Setting the Date

1133

The HOLD indicator lights on the display, indicating that the VCR is in the

The the first two digits of the counter display blinks.

3. Set the figures of the month.

86 SI D211

Press the HOLD button to initiate the setting mode.

Set the TC DISP switch to SUB TC and the counter switch to UB.

T. Display the date on the counter display.

U-ver. 1010

19:38 80 OZ

5. Press the PRESET button to save the set date in the memory.
The HOLD indicator on the display turns off and the date display stops blinking.

4. Similarly, set the figures of day and year by pressing the SHIFT button to

Press the ADVANCE button to set the figure of the blinking digit.

change the blinking digit and pressing the ADVANCE button to set its figure.

E-ver. Hour Min.

15.30 shift ila do do

10.1 1.0E.5/

TC DISP switch

ė

The first digit of the counter display blinks.

 $oldsymbol{3}$. Similarly to the date setting operation, set the figures of the hour, minute and second using the SHIFT and ADVANCE buttons.

 $m{Z}_{a}$ Press the HOLD button to initiate the setting mode. The HOLD indicator lights on the display, indicating that the VCR is in the

Set the TC DISP switch to SUB TC and the counter switch to TC.

■ Setting the Time of the Day - Display the time data on the counter display. The hour should be set in the 24-hour mode.

The frame cannot be set. It will be fixed to 00.

The HOLD indicator on the display turns off and the time starts to count. 4. Press the PRESET button to save the set time in the memory.

REPRODUCING THE DATE AND TIME

The recorded date and time data is not included in the video signal output from the VIDEO OUT connector or the time code signal output from the TC OUT connector. The data is displayed only on the counter display of the VCR section during playback of the tape.

When a tape recorded with this unit is played on a desk-top type DIGITAL S VCR (e.g., JVC BR-D50U/D51U/D80U/D85U, etc.),
 the date or time data is shown on the sub-time code display of the DIGITAL S VCR. The time data is displayed when the COUNTER switch of the DIGITAL S VCR is set to TC, and the date data is displayed if the switch is set to UB.

10. SETUP MENU

10-1 VCR Setup Menu

The setup menus for VCR section can be set by referring to its counter display. The setup menu is not output to the MONITOR OUTPUT connector or viewfinder. The set contents are stored in the memory and held even after the power is switched OFF.

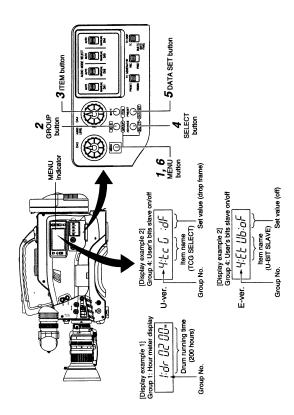
VCR SETUP MENU CONFIGURATION

The setup menus are divided into 4 groups. Groups 1, 2 and 3 consist of display-only items such as the hour meter display, while Group 4 contains some items which can be set individually as required.

Caroup 1

10-1 VCR Setup Menu (Cont'd)

DISPLAYING AND SETTING VCR SETUP MENUS



- Enter setup menu mode.
 Press the MENU button.
 → The MENU indicator lights on the display and the counter display shows the setup menu.

- 2 select the group.
 Press the GROUP button.

 → The group No. shown on the counter display changes.

 → Each press of the GROUP button changes the displayed

 Each press of the GROUP button changes the displayed

 No. from Group 1 Group 2 Group 3 Group 4 Group 1....
 - To exit from setup menu mode after simply confirming the display in Group 1, 2 or 3, press the MENU button now. The VCR section returns to normal mode.
- Proceed to the following steps when you want to confirm or set the setup menus in Group 4.
 - 3. Select a Group 4 item.
- Press the ITEM button
- The setup menu item shown on the counter display changes.
 - Pressing the ITEM button when the Group 1, 2 or 3 display is shown does not change it.

- Select the setting value of the selected setup menu item. Press the SELECT button to select the setting value.
- Repeat steps 3 and 4 above for each of the items you want
 - 5. Save the setting value.
- Press the DATA SET button.

 -- "SAVE" is displayed on the counter and the setting value is saved in the VCR memory. The counter display returns to the setup menu display when data has been saved.
- 4:-5 Ru:E-

- 6. Quit setup menu mode.
 Press the MENU button.
 The VCR section returns to normal mode.
- If setup menu mode is quitted without saving the setting value changed with the SELECT button, "Abort" is displayed on the counter display for about 3 seconds.
 To display the previously operated setup menu again, press the MENU button again while "Abort" is displayed.

10. SETUP MENU

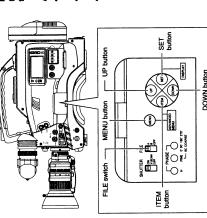
10-1 VCR Setup Menu (Cont'd)

SETUP MENU CONTENTS

10-2 Camera Section Setup Menu

10. SETUP MENU

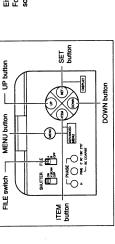
In the camera section of this unit, there are two menu screens; MAIN MENU and ADVANCED MENU.



MAIN MENU inclions for use in recording, for example the detail enhancement function.

ADVANCED MENU

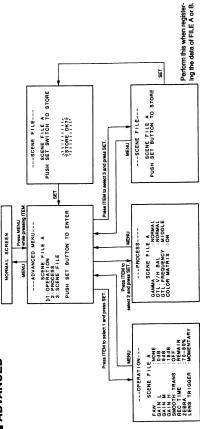
- OPERATION Used to change the factory-set values for the zebra pattern display, gain, etc.
 - PROCESS Used to fine-adjust the gamma characteristic, etc, of the camera input signal.
- SCENE FILE Used to register the set values.
 Either of these menu screens are displayed in the viewfinder.
 For operation, refer to the operation method of each menu



MAIN

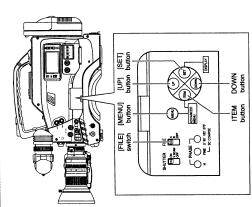


■ ADVANCED



10. SETUP MENU

10-3 Camera Section MAIN MENU Screen



<Setup Procedure>

- $oldsymbol{1}_{oldsymbol{ iny}}$. Using the FILE switch, select the required file to be set up.
- \pmb{Z}_{\bullet} On the normal screen, press the MENU button to display the MAIN MENU screen in the viewfinder.
- $\boldsymbol{3}_{\cdot}$. Using the ITEM button, move the cursor ([>) to the required item to be set up.
 - $oldsymbol{4}_{oldsymbol{ iny}}$ Change the setting value using the UP or DOWN button.
- 5. Press the MENU button to resume the normal screen. At this time, the setting values are registered into the memory of DY-90. The set values are maintained even if the power is turned off.



Item	Function, Operation	Variation Range	Initial Setting
DETAIL	Adjusts the detail enhancement level. • To sharpen details Increase the number. • To soften details Decrease the number.	MAX (9) 8 1 1 NORMAL (0) -1 -6 MIN (-7)	NORMAL
MASTER, BLACK	Adjusts the pedestal level (master black) which is the reference of black. • To increase the pedestal level Decrease the number. • To decrease the pedestal level	MAX (10) 9 1 1 NOFIMAL (0) 1 9 MIN (-10)	NORMAL
IRIS	Changes the setting value of the detecting level in the auto iris mode. • PEAKDetects the peak level of brightness • NORMAL Detects normal level • AVG Detects the average level of brightness	PEAK NORMAL AVG	NORMAL
V.RESOLUTION	Increases the vertical resolution. • NORMAL	NOFIWAL V. PLUS V. MAX	NORMAL

10-3 Camera Section MAIN MENU Screen (Cont'd)

10. SETUP MENU

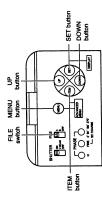
Item	Function, Operation	Variation Range	Initial Setting
BACK TALLY	Selects whether the BACK TALLY lamp on the handle section of this unit is activated or not. ON	OPF	NO
F NO.DISPLAY	Selects whether the F number of the lens iris is displayed in the Status 1 screen or not. ON F number is displayed. OFF F number is not displayed.	ON OFF	NO
AUDIO DISPLAY	Selects whether the audio indicator is displayed in the Status 1 screen or not. ON: Audio indicator is displayed. OFF: Audio indicator is not displayed.	ON OFF	NO
SAFETY ZONE	Selects the safety zone setting. See "Safety Zone" on page 29.	OFF ZONE1 ZONE2 ZONE3	OFF
SET UP BOX OPERATE	Recalls the set up box operation screen. See "Set Up Box Operation" on page 78.		

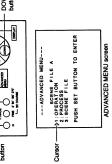
10. SETUP MENU

10-4 Camera Section ADVANCED MENU Screen

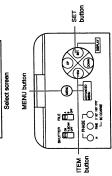
In the ADVANCED MENU screen, there are two sub-menu screens ; 1 : OPERATION (for operations) and 2 : PROCESS (for video

The values set in the ADVANCED MENU screen can be registered in the three types of memory areas — FILE A, FILE B and FILE OFF. When the values registered in FILE A and FILE B are stored in the memory of this unit with 3: SCENE FILE screen, they are maintained even when the power is turned OFF. The values registered in the FILE OFF are registered in the memory of the DV-90 when the ADVANCED MENU screen is resumed, therefore, they are also maintained when the power is turned off.

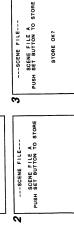












<Setup Procedure>

- Set the FILE switch to the file position to be set up. (FILE A, B, OFF)
- 2, in the normal screen, while pressing the ITEM button, press the MENU button to display the ADVANCED MENU screen in the viewfinder.
- Press the ITEM button to move the cursor (\gt) to the select screen (1 : OPERATION or 2 : PROCESS).
- $oldsymbol{4}_{oldsymbol{ ext{-}}}$ Press the SET button to display the select screen.
- On the select screen, select the setting item using the ITEM button. (The selected item blinks.)
- $oldsymbol{6}$. Using the UP or DOWN button, change the value of the selected item.
- To register the setting values for FILE A or B, carry out the following procedure. The data in the FILE OFF is registered when the screen returns to the ADVANCED MENU. 7. After the setting is finished, press the MENU button to return The registered data is maintained even if the power is turned off. to the ADVANCED MENU screen

<Registration Procedure>

When the registration of FILE A or B is performed, since the setting value is stored in the memory of this unit, it is not cleared even when the power is turned OFF. (Registration operation is not required for the data of FILE OFF.)

- $\pmb{1}_{\bullet}$ Press the ITEM button to move the cursor ([>) to the 3 : SCENE FILE item.
 - $oldsymbol{2}$. Press the SET button to display the SCENE FILE screen.
- "STORE OK?" is displayed.
 When the SET button is pressed again, the setting value is registered in the FILE and the ADVANCED SCHEEN is When the registration is not required, press the MENU button in the SCENE FILE screen to return to the ADVANCED SCREEN. $oldsymbol{3}_{oldsymbol{ ext{-}}}$ When the SET button is pressed in the SCENE FILE screen.
 - if the FILE is set to OFF, "PUSH MENU BUTTON" is displayed.
- When the MENU button is pressed, The Normal screen is



10. SETUP MENU

10-4 Camera Section ADVANCED MENU Screen (Cont'd)

OPERATION SCREEN

ltem	Function, Operation	Variation Range	Initial Setting
FAW	Selects the position of the W.BAL switch ® (on page 13) where the FAW (Full-Time Auto White Balance Adjustment) function is to be assigned. A	NONE A B B PRESET See page 44(U- ver.), 43(E-ver.) for	NONE
GAIN L	Selects the gain value in the GAIN L position of the sensitivity select switch.	-3dB odB 6dB 6dB 9dB 12dB 18dB 18dB See page 76 for the ALC function.	0 dB
GAIN M	Selects the gain value in the GAIN M position of the sensitivity select switch.	-3dB OdB 6dB 9dB 12dB 11dB ALC (Auto gain level control) See page 76 for the ALC function.	ab 6
GAIN H	Selects the gain value in the GAIN H position of the sensitivity select switch.	-3dB 0dB 6dB 9dB 12dB 18dB ALC (Auto gain level control) See page 76 for the ALC function.	18 dB
SMOOTH	Smoothers the transition when the GAIN switch ② (on page 12), or W.BAL switch ③ (on page 13) is switched over and achieves gradual change in place of sudden change. N	ON OFF	OFF
RECTIME	Sats either the remaining tape recording time or TIME CODE to be displayed on the viewfinder screen. TIME CODE TIME CODE is displayed. REMAIN	TIME CODE REMAIN	REMAIN

FILE A screen

SCENE FILE screen

STORE OK?

10. SETUP MENU

10-4 Camera Section ADVANCED MENU Screen (Cont'd)

mell	Function, Operation	Variation Range	Initial Setting
ZEBRA	Switches the brightness level of the object section where the zebra pattern is displayed. 70-80%	70 – 80%, 85 – 95% OVER 95% OVER100%	70 – 80%
LENS TRIGGER	LENS TRIGGER Changes the lens trigger setting according to the lens in use. MOMENTARY Compatible with momentary (non-lock type) triggering. Mainly used with lenses using the 12-pin connector. ALTERNATE Compatible with alternate (lock type) triggering. Mainly used with lenses using the 8-pin connector.	MOMENTARY ALTERNATE	MOMENTARY

PROCESS SCREEN

- The set values can be changed with the UP or DOWN button.
 After setting, press the MENU button for earling to the ADVANCE MENU screen.
 In case to register the set value in the FILE A or FILE B, select "3 SCENE FILE" with the ITEM button and press the SET button.
 In case to register the set value in the FILE A or FILE B, select "3 SCENE FILE" with the ITEM button and press the SET button.

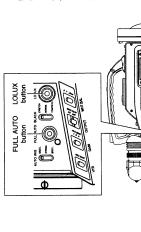
6 0 0000 111			
ltem	Function, Operation	Variation Range	Initial Setting
GAMMA	Correction of the gamma curve to decide the replay ability of black color. • To enhance the black color replayed, however, halftones will be lost for write section ""	MAX 7 18 step to (including OFF) NORIMAL to -7 MIN	NORMAL
	Note: • During the LOLUX operation, " FIX" is displayed because GAMMA is fixed at the MIN value. • When GAIN is set to 18 dB, "FIX" is displayed because GAMMA is fixed at the MIN value.	FF0	
DTL. V/H BAL	Sets the direction, horizontal (H) or vertical (V), in which stronger detail enhancement is applied. • To strengthen the H enhancement increase the number (UP). • To strengthen the V enhancement Decrease the number (I	H-MAX (4) 3 to 9 step NORIMAL to to -3 H-MIN (-4)	NORMAL
DTL FREQUENCY	Varies the detail enhancement level by changing the contour frequency emphasis. The setting depends on the subject: • HIGH Applies strong detail enhancement emphasis. Used to shoot subjects with fine patterns. • MIDDLE Applies medium detail enhancement emphasis. • LOW Applies weak detail enhancement emphasis.	HIGH MIDDLE LOW	ГОМ
	Note: The DTL. FREQUENCY cannot be set when the GAIN of the AD- VANCED MENU is set at 18 dB.		

10-4 Camera Section ADVANCED MENU Screen (Cont'd)

10. SETUP MENU

Variation Range Initial Setting S F When the GAIN value exceeds +15 dB, the color matrix does not function even in the ON position. During the LOLUX operation, COLOR MATRIX is fixed to the OFF setting and "FIX" is displayed. Sets the color matrix • ON The color replayed is enhanced, but noise increases. • OFF Deactivates the color matrix function Function, Operation | Note: COLOR MATRIX Item

10-5 Resetting Setup Data



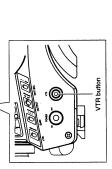
Resetting the FILE data

Data registered in the FILE A or FILE B areas can be cleared to restore the initial setting value.

While pressing the FULL AUTO button, turn the power ON. <How to reset FILE A>

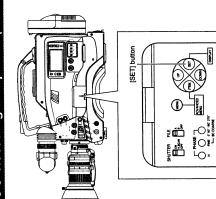
<How to reset FILE B>
While pressing the LOLUX button, turn the power ON.

<How to reset FILE OFF>
While pressing the VTR button, turn the power ON.



10. SETUP MENU

10-5 Resetting Setup Data (Cont'd)



System Reset

Data registered for all setting items can be cleared to restore the initial setting values.

The mechanical switch positions and auto white balance memory are not cleared.

How to reset the system

While pressing the SET button, turn the power ON.

System Reset Items and Initial Setting Values

Item	Initial Setting Value	
SHUTTER	1/100 (U-ver.), 1/120 (E-ver.)	SCEN
V.SCAN	1/100.2 (U-ver.), 1/120.1 (E-ver.)	
STATUS SCREEN	STATUS 0	
гогих	OFF	
FULL AUTO	OFF	
DETAIL	NORMAL	
MASTER BLACK	NORMAL	
IRIS	NORMAL	
V.RESOLUTION	NORMAL	
BACK TALLY	NO	
F.NO DISPLAY ON		
AUDIO DISPLAY	NO	
SAFETY ZONE OFF		

Item		Initial Setting Value
FAW		NONE
GAINL		OdB
GAIN M	Σ	9dB
GAIN H	I	18dB
SMO	SMOOTH TRANS	OFF
REC	REC TIME	RENAIN
ZEBRA	Y.	70-80%
LEN	LENS TRIGGER	MOMENTARY
GAN	GAMMA	NORMAL
ᇤ	DTL.V/H BAL	NORMAL
Ш	DTL.FREQUENCY	LOW
8	COLOR MATRIX	NO

11. FEATURES OF THE CAMERA SECTION

11-1 Full-Time Auto White Balance (FAW)

FAW GAIN L GAIN M GAIN M GAIN H SMOOTH TRANS TREC TIME ZEBRA LENS TRIGGER

as the lighting condition changes. This mode is convenient when you have no time to adjust the white balance or when the cannera is moved frequently in and out of places under different lighting conditions.

The FAW function adjusts the white balance value automatically



This item allows setting of the FAW function to one of the white balance switches, A, B or PRESET. Select "NONE" if the FAW function is not required.

See page 69.

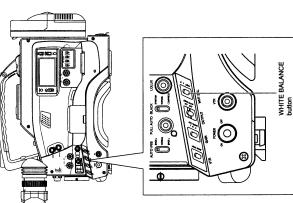
The FAW function can be activated with item "FAW" on the Ad-

Setting procedure

vanced Menu.

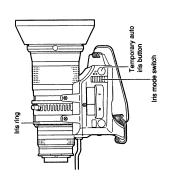
adjustment range, for example when it contains only a single color or not enough white color. The FAW(Full-time Auto White balance) function cannot provide optimum white balance with an object outside the FAW CAUTION:





1-2 IRIS (Brightness) Adjustment

LENS IRIS ADJUSTMENT



The lens iris can be adjusted by any of the following three methods

Set the iris mode switch to "A (Auto)". Automatic adjustment

The iris is adjusted automatically according to the brightness of the object.

Manual adjustment

Set the iris mode switch to "M (Manual)".

The iris can be adjusted manually by rotating the iris ring.

When this button is pressed during manual iris adjustment, the auto iris adjustment mode is activated only while this but- Temporary auto iris adjustment ton is held depressed.

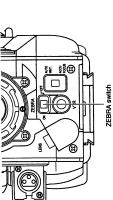
Changing the auto Iris adjustment setup

Under special lighting conditions such as back-light condition, it is often suitable to change the value set by the auto iris ad-

This can be done by any of the following methods.

- Setting the AUTO IRIS LEVEL switch of the camera head (See page 77.)
 - Setting item "IRIS" in the Main menu screen. (See page 66.)

ZEBRA PATTERN DISPLAY DURING MANUAL ADJUSTMENT



tern) can be displayed in the sections with signal levels of 70% to 80% on the viewfinder screen. By setting the ZEBRA switch to ON, oblique stripes (zebra pat-

The zebra pattern can be used as a reference for manual iris adustment.

When adjusting the iris manually, adjust it so that the zebra pat-

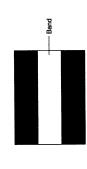
terns are displayed in the section which you want to stress in the object.

setting on the ADVANCE MENU, zebra patterns can be displayed in the section of 85 to 95%, over 95% and over 100% The initial setting is 70 to 80%. However, with the "ZEBRA" in brightness level. (See page 70)

11. FEATURES OF THE CAMERA SECTION

11-3 Shooting the Screen Image on the Computer Monitor

Outline



Video monitor

When a computer monitor or display is shot with the camera, a

monitor or display.

bright horizontal line indicating excessive exposure is displayed in cases when the scanning rate of the monitor is faster than the shutter speed of the camera or a dark horizontal line indicating insufficient exposure is displayed in cases when the moni-

 The following operation allows the alignment of the shutter speed of the camera with the variable scanning rate of the computer The scanning frequency of the monitor is variable due to varining rate so as to obtain a stable image while observing the

tor's scanning rate is slower than the camera's shutter speed.

ous reasons during the computer operation. Adjust the scan-

■ Variable Scan [V.SCAN]

image on the viewfinder screen.

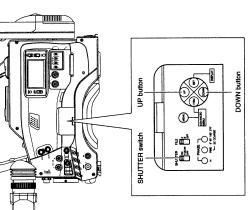
Set the SHUTTER switch to the center position (V.SCAN) then adjust the shutter speed with the UP or DOWN button. (The speed is displayed on the viewfinder screen.) Basic operation

Compatible frequencies

The variable scan function is compatible with the scanning frequencies in the following range: 60.5 to 1966.7 Hz : U-ver.

50.4 to 1953.1 Hz : E-ver.

 If the SHUTTER switch has already been set to ON or V.SCAN, press the UP or DOWN button to display the shutter speed, then press the same button again to change the displayed speed.

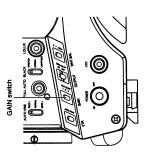


11. FEATURES OF THE CAMERA SECTION

11-4 Gain (Sensitivity) Adjustment

The gain should be switched when the brightness is not enough due to the poor lighting condition.

GAIN SWITCHING



This switch allows the gain to be boosted when the illumination of the object is insufficient.

Factory-Set Gain	0 dB	9 dB	18 dB	
Switch Position		Σ	I	

When this is switched, the newly set gain is displayed for a few seconds on the status 0 or mode 1 screen inside the viewfinder. Set it to L (0 dB) in normal use.

- The gain set with each of the switch positions can be set with "GAIN" of the ADVANCED MENU. See page 69 for details.
- It is also possible to use the ALC which varies the gain automatically See page 69 for details. Smooth gain transition

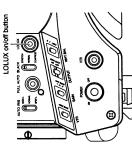
The gain transition can be made smoother using "SMOOTH TRANS" of the ADVANCED MENU. However, note that the SMOOTH TRANS function is not available if the switch is set to ALC.

CAUTION FOR THE GAIN SETTING

■ When the GAIN is set to 18dB, GAMMA is fixed at the MIN and "FIX" is displayed on the GAMMA item of the Advanced menu screen.

in order to make the screen look brighter, the noise is increased a little with the ALC (Auto Level Control) function compared to that when the sensitivity is increased If the illumination is insufficient when GAIN is set to the ALC, the sensitivity is increased automatically. However, manually.

GAIN BOOST UNDER LOLUX CONDITION



illumination insufficient cannot be compensated for with the GAIN The LOLUX on/off button is designed to be used when insufficient switch alone.

LOLUX ON" is displayed for a few seconds on the status 0 or 1 Press the button to enter the LOLUX mode in which the gain is boosted Pressing the button again cancels the LOLUX mode. mode screen inside the viewfinder. by about 33 dB.

will degrade to increase residual images, but it is not a ■ When the LOLUX is in use, the image definition on the screen

"LOLUX OFF" is displayed for a few seconds.

[Relationship between gain, iris and shutter]

18000 Lx		1/240: U-ver. 1/200: E-ver.		
			Œ	
4200 Lx		1/60 1/50		F16
2000 Lx			SIE	F
	FULL AUTO SHOOTING		AUTOMATIC IRIS	
32 LX	- FULL	9 dB		F1.4
	ļ	18 dB	ALC	
0.7 Lx		33 dB	רסרתא	
		ਲ		

11. FEATURES OF THE CAMERA SECTION

11-5 Switch Setup According to Illumination and Object

SWITCH FUNCTIONS

BLACK stretch/black 0 AUTO IRIS LEVEL

This switch allows changing of the reference value for the BACK. L : When the object is in the back-light condition. auto iris adjustment according to the lighting condition. **AUTO IRIS LEVEL** switch

Sets the Auto Iris reference value to a value which is about 1 step wider than the standard Normal lighting condition.

: When the object is under a spotlight. NORMAL SPOT. L

Sets the Auto Iris reference value to a value which is about 1 step narrower than the standard setting

On the black screen, this switch makes the image easier to BLACK stretch/black compress switch

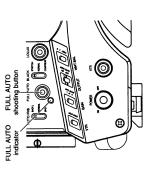
BLACK STRETCH : Boosts the black gain to improve the reproducibility of black color. see by varying the black gain.

BLACK COMPRESS: Attenuates the black gain to make the

: Normal black gain.

image sharper.

FULL AUTO SHOOTING (FAS) FUNCTION



The FAS function provides a wide range of compatibility with shooting conditions which varies as you move between indoors and The FAS function provides an integrated control of the ALC (Automatic Level Control), Auto iris and FAW (Full-time Auto White baloutdoors or between bright and dark locations. It is not necessary to change the switch and filter positions every time you move. ance) functions.

Operation

1. Simply press the FULL AUTO button to enter the FAS mode, in which the FULL AUTO indicator lights and "FAS" is displayed on the right of the viewfinder screen 2. Pressing the FULL AUTO button again cancels the FAS mode and turns the FULL AUTO indicator off.

■ Automatic Setting Contents

- · If you have been displaying the color bars, the screen is switched automatically to the camera image.
- The auto iris adjustment mode is entered even if the iris mode switch of the lens is set to Manual.
- The GAIN switch and WHT.BAL switch settings are defeated in the FAS mode.

When the power is switched ON in the FAS mode, it will take approximately 10 seconds for the FAS to complete

automatic adjustment.

- However, the ALC and EEI are defeated in the LOLUX mode, The LOLUX button setting is active even in the FAS mode. in which only the auto iris adjustment and FAW are used.
 - All of the previous setting contents are recalled when the FAS mode is canceled.
 - The SMOOTH TRANS function is defeated during switching by the FAS function.

This is set according to the AUTO/MANUAL switch of the VCR section. During FAS mode, the audio recording level is not set auto-Do not perform any recording during these few seconds.

matically to the AUTO mode.

11-6 Set Up Box Operation

When the set up box is used, the data registered in the FILE (A, B or OFF) memory can be written to be recalled later

<Attaching>

Insert the set up box as shown in the figure and tighten the screw (regardless of the power being ON or OFF).

<Writing>

The setting data in the FILE can be written onto the set up box.

Depending on the FILE switch setting, operation differs as 7. Select the FILE to be written.

- A : Menu switch data registered in FILE A of this unit is
- B : Menu switch data registered in FILE B of this unit is written onto FILE B of the set up box.

 OFF : Menu switch data registered in FILE OFF of this unit written onto FILE A of the set up box.

000

- is written onto FILE OFF of the set up box.
- $oldsymbol{2}_{oldsymbol{-}}$ In the normal screen, press the MENU button to display the MENU screen in the viewfinder.

0

3. Using the ITEM button, move the cursor ((>) to the SET UP BOX OPERATE item and press the SET button. The SET UP BOX OPERATE screen appears and the FILE which is set at procedure "1," is displayed. (A, B, OFF)

SET UP BOX

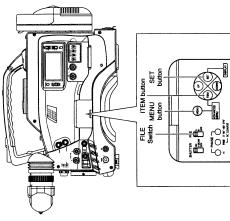
- $m{4}_{\bullet}$. Using the ITEM button, move the cursor (\triangleright) to the DATA WRITE item and press the SET button.
- "DATA WRITE OK?" is displayed. To cancel writing, press the MENU button.
- **5.** To write the data, press the SET button. The data of this unit is written onto the set up box and "WRITE To write another FILE data, repeat the operations in steps 1 OK" is displayed.
- After writing is finished, press the MENU button to return to the MENU screen. Press the MENU button again to restore the normal screen. ø.

MENU ITEM SET button button button

. •

(1)**

FILE |

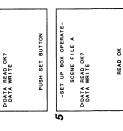






-SET UP BOX OPERATE-

SCENE FILE A



-SET UP BOX OPERATE-SCENE FILE A

5

-SET UP BOX OPERATE-

-SET UP BOX OPERATE-SCENE FILE A

DATA READ

DETALCHENCE A
DETALCHENCH FILE OF A
MASTER BLACK HORBALL
V RESCUTTON HORBALL
V RESCUTTON HORBALL
V RESCUTTON HORBALL
V RESCUT ON HORBALL
V RESCUT

SCENE FILE A

DATA READ

DATA READ DDATA WRITE OK?

WRITE OK

PUSH SET BUTTON

PUSH SET BUTTON

11-6 Set Up Box Operation (Cont'd)

<Read Out>

11. FEATURES OF THE CAMERA SECTION

The data in the set up box can be read out and written onto this

- 7. Select the required FILE.
 Depending on the FILE switch setting, operation differs as : Menu switch data in FILE A of set up box is read out
 - and written onto FILE A of this unit.

 : Menu switch data in FILE B of set up box is read out and written onto FILE B of this unit.
 - OFF: Menu switch data in FILE OFF of set up box is read out and written onto FILE OFF of this unit.
- $oldsymbol{2}$. In the normal screen, press the MENU button to display the MENU screen in the viewfinder.
- 3 Using the ITEM button, move the cursor (⊳) to the SET UP BOX OPERATE from and press the SET button. The SET UP BOX OPERATE screen appears.
- 4. Using the ITEM button, move the cursor (▷) to the DATA READ item and press the SET button. "DATA READ OK?" is displayed. To cancel reading, press the MENU button.
- 5. To read out the data, press the SET button.
 The data of the set up box is read out and written into the unit, then "READ OK" is displayed.
 To read out another FILE data, repeat the operation in steps
- $oldsymbol{6}$. After reading is finished, press the MENU button to return to the MENU screen. Press the MENU button again to restore the normal screen.

000 Genlock Genlock output STEELS SO /ideo input

(1) SHUTTER FILE PHASE -PHASE controls

of the camera with another component including a camera and switcher. The phases of the camera signal can be adjusted relativisty with reference to the black burst or composite video signal. The camera is genlocked through the genlock input connector or Gentocking is a function which synchronizes the video output signa the remote control unit.

When the power is switched ON while external sync signal is input, the screen moves in a vertical direction for a few seconds. This is not a malfunction. Note:

The unit provides warning on troubles in the operating situations using indicators, LCD displays and monitor tones. The warning consists of the following two kinds of information.

12. OTHERS

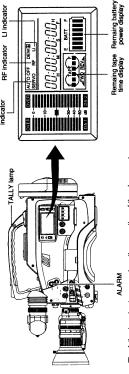
12-2 Trouble Shooting

• Alarm indications : These indications are given to provide warning on the VCR situation, for example when the tape or battery pack should be replaced.

Error code display: In case an error occurs with the VCR operation, the unit applies self-diagnostics of the cases and shows the
diagnostics results on the counter display. At the same time as displaying an error code display, the VCR stops
operation automatically or ejects the cassette tape.

SERVO

- ALARM INDICATIONS



The following chart summarizes the operation of the alarm system.

■ SYMPTOMS

VCR Display Alarm indicator	Sympton	VCR section Behavior, Treatment
SERVO	Lights in the case the drum servo trouble in recording. Lights when the input video signal is disturbed or the unit is subject to shock. (Displayed only in record mode)	Operation: Continues. Teatment: • Check input video signal. • Signal is disturbed when the unit is subject to a violent shock. In other cases, consult your dealer or nearest JVC-authorized service agent.
T.	Lights in case of video head clog. (Displayed only during back-spacing for record-pause mode.)	Operation : Continues. Treatment : Clean the head with the special head cleaning tape. See page 7.
٥	Lights when lithium battery for time code generator and date/ time data backup is exhausted.	Operation : Continues. Treatment : Replace it with a new lithium battery. See page 34.
	x. 2 m d or rec tone a	Operation : Continues.
	When tape has ended completely.	Operation : Stops.
Remaining battery power	an the remaining bat	Operation : Continues. Treatment : Replace battery pack early.
	When the battery power drops to an insufficient level.	Operation: Stops automatically, The camera may supply abnormal signals, when contin- uing to use a low power battery. This is not a mathurotion.

: A fine adjustment can be made. If sufficient adjustment cannot be made, switch the SC COARSE and try the SC FINE adjustment

180°, 270°)

SC FINE

 The adjustments require the use of external measuring instruments such as a waveform monitor, oscilloscope and As the signal phase is unstable for a moment after the power of each piece of equipment is turned on, wait a while before

vector scope.

starting the phase adjustment.

CAUTION:

flutter of the audio tape playback signal. If you should use the VCR playback signal as the reference signal, be sure to correct the signal using a timebase corrector or similar equipment.

tion in the VCR playback signal that corresponds to the wow and

The camera cannot be genlocked with a VCR playback signal because this may cause a sync error or color phase variation. However, this is not a malfunction but due to the timebase varia-

the H phase so that the reference signal and the video output signals are coincident in terms of A rough adjustment of the sub carrier (SC) can be made while observing a vector scope. (0°,90°,

position and time on the screen

SC COARSE

Two phase controls are provided for use in adjusting the horizontal and the color phases.

H : Horizontal sync phase control for use in adjusting

Phase Adjustment

→ See page 1-24 "1.10 HOW TO DETECT THE ALARM".

12. OTHERS

12-2 Trouble Shooting (Cont'd)

ALARM INDICATIONS (Con'd)

■The LCD Display, WARNING Indicator, TALLY Lamp, Alarm Tone and Viewfinder Act Depending on Situations as Shown in the Following Table.

.	Alarm Indications	ations			>	Viewfinder
LCD Display	WARNING	TALLY	Alarm Tone	Warnin	Warning Lights	On Screen Display
				REC Light	BATT Light	
SERVO indicato	₩	❸		↔		VTR WARNING (SERVO)
RF indicator	₩	❸		↔	_	VTR WARNING (HEAD)
LI indicator		1	ı	-	-	1
	•		(In record mode)	•	1	TAPE NEAR END Approx. 3min. before tape end.
	•	↔		↔	1	TAPE END
Remaining battery power the attery power to atter the atternation of a at	•	(Ex play/sea	(Except for play/search mode)	•	•	LOW BATTERY
	•	₩		₽	•	2

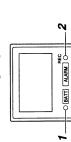
• The alarm tone output is superimposed in the audio signal output from the monitoring loudspeaker or EARPHONE jack. The volume of the alarm tone can be adjusted with the ALARM control.



12-2 Trouble Shooting (Cont'd)

WARNING MESSAGE ON VIEWFINDER

■ Viewfinder Warning Lights



When a trouble occurs on the VCR section or a mis-operation is performed, the following warning message will appear in the viewfinder.

• VTR WARNING (HEAD):

Function Failures

Lights in case of video head clog. (Displayed only during backspace for record-pause mode.)

• VTR WARNING (SERVO):

Lights in case drum servo trouble in recording.

 VTR WARNING (DEW):

1. BATTERY light

· This blinks red when battery voltage becomes too low for

Lights when condensation occurs in the VCR section.

• VTR WARNING (HARD):
Lights when a trouble occurs in the VCR section.
For details of trouble, check the error code indication chart

- the camera to operate.
- This lights red when the battery has runout.
- Z. REC/ALARM light
 This light shines for these conditions.
- Solid Green :• While recording
 Blinks Green :• While the VCR prerolls before recording
 If the tape is finishing.
 If the VCR matfunctions.

Automatic warnings: LOW BATTERY This binks when the battery level falls too low. TAPE ND There are less than 3 minutes tape remaining. TAPE END The ispe has run out.

cassette tape loaded.

Lights when the VTR trigger button is pressed with no

NO TAPE:

Lights when the VTR trigger button is pressed with an unrecordable cassette tape (with REC switch on the back of the cassette set to OFF) loaded.

 REC INHIBIT: on page 85.

Status 0 or 1 mode VTR WARNING (HEAD)

■ White Balance Function

: Check whether the object being shot is white enough. Check for proper filter. AUTO WHITE A, B NG : OBJECT

: Check to see if the sun or other bright light is shining in the lens. Check that the IRIS is adjusted AUTO WHITE A, B : ERROR : OVER LIGHT

properly.

: Check to see if increasing gain or lighting will help. AUTO WHITE A, B ERROR : LOW LIGHT

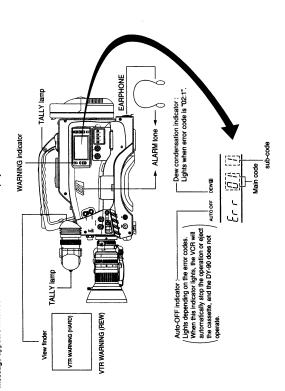
NG: OBJECT

12. OTHERS

12-2 Trouble Shooting (Cont'd)

TROUBLES WITH ERROR CODE OUTPUTS

In case of trouble during the operation of the VCR, it applies self-diagnostics to identify the cause and displays the result in the form of an error code. The error code consists of the "main code" which indicates its contents and the "sub-code" which indicates the details. At this time, the LCD display, the WARNINIG indicater and alarm tone also act according to the current VTR situation. In the viewfinder, the "VTR WARNINIG (DEW)" message appears when condensation occurs (error code 02:01), and the "VTR WARNINIG (HARD)" message appears when some of the other error codes are displayed.



WARNING indicator Alarm Tone	Alarm Tone	Display	VCR Operation
Red blinking	Continuous		"Error code" • Automatically ejects the cassette. It can be inserted again.
		"Error code" plus "AUTO OFF"	 Automatically stops operation or ejects the cassette. (Auto OFF*). "YTR WARNING (HARD)" is displayed on the viewfinder screen. The VCR does not accept any operation.
Red, steady lighting	Intermittent	"02:1" and "DEW ● "	 Dew is condensed in the VCR. "VTR WAFINING (DEW)" is displayed on the viewfinder screen. The VCR does not accept operation until indicators disappear from the display.

★In the Auto OFF status, it is impossible to operate the VCR. This condition can be corrected by switching the POWER off and then switching it ON again. If the same trouble occurs again after the power is turned ON, there may be a failure in the VCR. Plasse consult your dealer or nearest JVC-authorized service agent.

This unit is microcomputer-controlled equipment, which may malfunction due to external noise or interference. In this case, switch the POWER OFF, remove the lithium backup battery, and switch the POWER ON again after a few minutes.

12. OTHERS

12-2 Trouble Shooting (Cont'd)

TROUBLES WITH ERROR CODE OUTPUTS

Error Code	Error Details	VCR Operation	Treatment
01:1	Tape sensor LED wire is disconnected	Ejects cassette and does not accept any operation while the error is displayed.	Switch power ON again.
02:1	Condensation (dewing)	Does not accept any operation while the error is displayed. When condensation disappears, the indicators turn off.	Leave the unit with the power ON, until "DEW" display disappears.
32:1 32:2	Tape loading impossible.	Ejects cassette	Insert cassette again.
33:1 (AUTO OFF)	Tape unloading impossible.	Stops operation. Does not accept any operation.	Switch the power OFF and then switch it back ON. However, the tape may be damaged depending on the situation. So consult with the JVC authorized service agent.
56:3 to 56:8	Tape is cut or tape is slack.	Ejects cassette.	Check cassette and insert again if it is OK.
57:1 to 57:4	Tape end sensor error.	Rewinds tape to confirm. If tape end is detected again, ejects the cassette.	Check cassette and insert again if it is OK.
58:1 to 58:4	Tape beginning sensor error.	Fast forwards tape to confirm. If tape beginning is detected again, ejects the cassette.	Check cassette and insert again if it is OK.
70:1 (AUTO OFF)	Drum rotation stopped.	Stops operation. Does not accept any operation.	Switch the power OFF and then switch it back ON. However, the tape may be damaged denenged on the situation Co. consult with
71:1 (AUTO OFF)	Capstan rotation stopped.	Stops operation. Does not accept any operation.	depending on the studion. So consuit with JVC authorized service agent.
72:1 to 72:5 (AUTO OFF)	Supply reel rotation error.	Stops operation. Does not accept any operation.	
72:7	Supply reel rotation error due to tightly wound tape.	Ejects cassette.	Check cassette and insert again if it is OK.
73:1 to 73:4 (AUTO OFF)	Take up reel rotation error.	Stops operation. Does not accept any operation.	Switch the power OFF and then switch it back ON. However, the tape may be damaged depending on the situation. So consult with the JVC authorized service agent.
73:7	Take up reel rotation error due to tightly wound tape.	Ejects cassette.	Check cassette and insert again if it is OK.

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See page 1-25 "1.11 ERROR CODES".

12. OTHERS

12-2 Trouble Shooting (Cont'd)

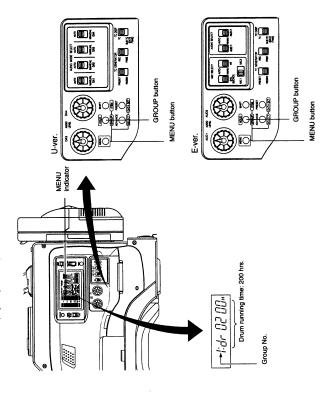
TROUBLES WITHOUT ERROR CODE OUTPUTS

Symptoms	Check points
Power cannot be switched ON.	 Is power supply connected properly? Is battery pack recharged? When the lithium battery is depleted, the power should not be turned on.
Recording is not possible.	• is REC switch of cassette set it to ON? If it is OFF, set to ON.
Cassette is ejected.	 Is the cassette in use a DIGITAL S cassette? VHS or S-VHS cassettes are ejected whenever they are inserted.
Noise interferes with playback video.	 Video head may be clogged with dirt. Clean head with the special head cleaning tape. See page 7.
Time code or date/ time data are not displayed on the monitor screen.	 Time code and date/time data are not displayed on the monitor screen during recording or playback of VCR. The data is shown only on the counter display.
Time code and user's bit data are not displayed on the counter.	• Is TC DISP switch under the side panel cover set to SUB TC? If it is, set the switch to TC.
Remaining battery power display is incorrect.	 The setup menu item "BATT TYPE SELECT" may not be set correctly according to the type of battery in use. If the menu item setting is wrong, set it correctly by opening setup menu item "BATT. TYPE SELECT."
Battery alarm is displayed and VCR enters OPERATE OFF mode even when a fully charged battery is used.	
Cassette can not eject after the power is turned on.	 The power supply unit's capacity may be insufficient. Check the power voltage. If the power is turned off within 1 second of opening the cassette holder, the cassette holder may not close property.
Viewfinder image looks dark or unclear.	Adjust the contrast control. Is the filter switch set to 5600K+ND? Is the filter switch set to 5600K+ND? Is the sit closed? Is the shuter speed too fast? Is the viewfinder cable correctly connected?
Noise appears when playing back a tape recorded with another VCR.	 When the tape recorded on another VCR is played back or used for recording, this phenomenon may occur caused by the tracking shift.
The scene change section is disordered when a tape recorded with another VCR is used.	
VCR section does not operate after loading the cassette.	 Does the cassette indication ((CD) in the display light? When the cassette indication is not iff, the cassette cover is in the half-lock condition. Push the cassette cover to the end to securely lock the cassette.
MIC1 or MIC2 sound is not input. (E-ver. only)	• Using the [MIC1•MIC2] microphone select switch, select the mic input to be used.
A recording check is not possible with the viewfinder or monitor in the record-pause mode.	 is the [CAMAVTR] switch set to the CAM position? if so, set it to the VTR position.
Playback image is not output.	

12. OTHERS

12-3 Hour Meter Display

The unit can display the running time of the drum as the hour meter data on the counter display. The hour meter can be displayed by selecting setup menu Group 1.



Turn the POWER switch to ON.

- **Z** Press the MENU button to enter the setup menu mode.
 The MENU indicator lights on the display and the setup menu is shown on the counter display.
 - $\bm{3}_{\star}$ Press the GROUP button to display setup menu Group 1. — The drum operating hour data is shown on the counter display.
 - 4. Press the MENU button to return to the normal mode.

12. OTHERS

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12-5 Specifications

CAMERA SECTION		 INPUT/OUTPUT SIGNALS 	S
Image pickup device	Image pickup device : 2/3-inch interline CCDs	Video signal output	: 1 V (p-p), 75 Ω (BNC) (Composite video signal)
Number of effective pixels	Cold separation optical system 1 -3-color separation priority. Unruber of effective pixels : 380,000 pixels (768 (H) \times 493 (VI) : U-ver. Ann one pixels (774 (H) \times 581 (VI) : E-ver.	Lens DA4 (MIC 1) input	: 12-pin connector : –52 dBs, unbalanced, 6-pin
Color system	: NTSC (R-Y, B-Y encoder) : U-ver. PAL (R-Y, B-Y encoder) : E-ver.	DA2 (MIC) input DA1/DA3 input	: -60 dBs, balanced, +48 V XLR-3-pin : +4 dBs/10 kΩ (select the switch)
Color bars	: SMPTE color bar : U-ver. EBU colour bar : E-ver.		-60 dBs/3 kΩ (select the switch) +48 V (ON/OFF switch)
Sync system	: Internal sync External sync (VBS or BB)	Audio output	(XLR3), balanced : 0 dBs, low impedance,
Lens mount	: Bayonet system (FB 48.0 mm, 2/3" CCD	tichic cocduci	(XLR5), balanced
Optical filter	cameras) : 3200 K, 5600 K, 5600 K + 1/16ND,	DC input	: 12 VDC== (11 to 15 VDC==)
	3200 K + Efect (cross) filter : U-ver. 3200 K, 5600 K, 5600 K + 1/4ND,	Auxiliary power output	: 12 VDC==: max. 0.1A (11 to 15 VDC==)
o o o o o o o o o o o o o o o o o o o	5600 K + 1/16ND : E-ver.	• GENERAL	
Gain	: -3. 0. 6. 9. 12. 18 dB. LOLUX, ALC	Power consumption	: 34W with VF-P116 (Max)
Minimum illumination	: 4 lx with F1.4, +18 dB gain		30W with VF-P115 or VF-P116 (when
Lolux minimum illumination	: 0.75 lx with F1.4		recording) : U-ver.
Registration	: 0.05% or less (excluding lens distortion)		12VDC := 2.8A with VF-P116 (Max)
Contour correction	: Horizontal dual-edged, Vertical 2 H		12 VDC::: 2.45A With VF-F 115 of VF- D116 (when recording) · E-ver
Shutter speed	: 100 (U-Ver.), 120 (E-Ver.), 250, 500,	Mass	: Approx. 6.9 kg [with VF-P115, A18 ×
V.SCAN speed	: 60.5 Hz to 1966.7 Hz : U-ver.		9B12, Flat shape type lithium ion bat-
	50.4 Hz to 1953.1 Hz : E-ver.		tery, accessory Micrphone
		Operating temperatures Operating humidty	: 0 °C to 40 °C : 30 % to 80 % RH
• VCR SECTION		Storage temperatures	: -20 °C to 60 °C
Format	: DIGITAL S		
Tape width	: 12.65 mm	• ACCESSORIES	
Tape speed	: 57.737 mm/sec : U-ver. 57.795 mm/sec : F-ver.	Microphone (Monaural)	×
Record/Play time	: 104 minutes (With a DS-104 cassette)	Tripod base	×
F.F/rewind time	: Approx. 4 minutes (With a DS-64)	Set up box Lithum battery	: × 1 : × 1 (CR2032)
[VIDEO]		Instructions	. .
Frequency response	: Y : 0 to 5.0 MHz		
ocionomico francisco	H-1/B-1 : 0 to 2:0 IMITZ		
Samping nedgencies	R-Y/B-Y: 6.75 MHz		
Octation	· 8-bit		

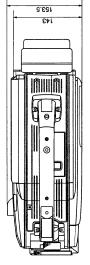
12-5 Specifications (Cont'd)

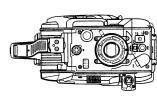
OPTIONAL ACCESSORIES

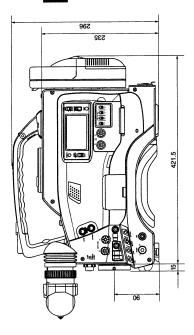
: VF-P115, VF-P116 : A18 × 9812, YJ18 × 98K12 r: AA-P250, AA-G10 : NB-G1 (12 V, 2.2 AH) : MX-P615, MV-P612 : KA-A90 Power zoom lens AC power adapter DC battery pack Viewfinder

Microphone Mic holder

EXTERNAL DIMENSIONS (unit: mm)







Design and specifications are subject to change without notice.

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8

: Compliance with SMPTE standard : U-ver. Compliance with EBU standard : E-ver. : 0 ± 6dBs, high impedance, unbalanced : 0 ± 6dBs, low impedance, unbalanced

[Time Code System] Time code signal

LTC input LTC output

: 20 Hz to 20 kHz (PCM) : More than 85 dB (PCM) (during BR-D80/D50 reproduction) : Below measurable limit

Dynamic range Quantization

Wow & flutter

Number of channels for recording : $PCM \times 4$, cue track $\times 2$ Sampling frequency : 48 kHz

Sampling frequency Frequency response

: More than 52 dB (during BR-D80/D50 reproduction with component output)

Quantization

SECTION 1 SERVICE CAUTIONS AND DISASSEMBLY

1.1 REPLACEMENT OF FUSE

Before replacing fuse, make sure to investigate the reason why it blew out and to remove cause of the failure first in order to prevent trouble from spreading.

CAUTION: -

FOR PROTECTION AND SAFETY IN OPERATION, FUSE SHOULD BE REPLACED ONLY BY THE ONES WITH RECOM-MENDED PARTS NOs.

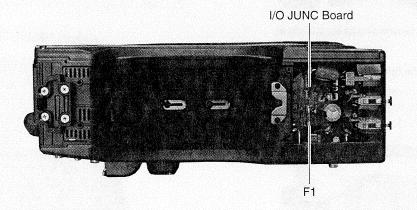


Fig. 1-1 Fuse circuit protectors layout diagram

Board names	Symbol No.	Symptoms in disconnection	Parts No.
I/O JUNC	F1	Power cannot be turned on. (No power is supplied the set.)	QMF51U1-4R0-S : for U-ver. QMF51A2-4R0-S : for E-ver.

1.2 HOW TO REMOVE THE OUTER CASE

1.2.1 How to remove the cassette cover

- (1) Remove two screws ①.
- (2) Slide the cassette cover in the arrow direction in order to remove it.

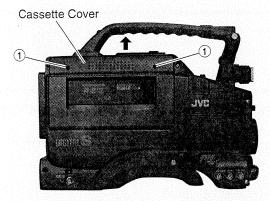


Fig. 1-2-1 How to remove cassette cover

1.2.2 How to remove the left side cover

- (1) Remove the cassette cover.(refer to the subsection 1.2.1)
- (2) Loosen the screw 2 to remove the set up box.
- (3) Loosen the five screws 3 to remove the left side cover.

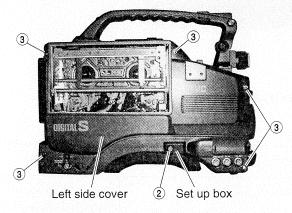


Fig.1-2-2 (1) How to remove the left side cover

(4) Disconnect the connector (A).

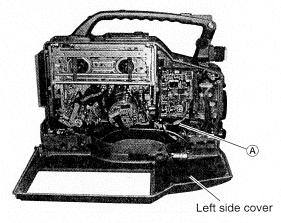


Fig.1-2-2 (2) How to remove the left side cover

1.2.3 How to open the right side cover

(1) Loosen the five screws 4.

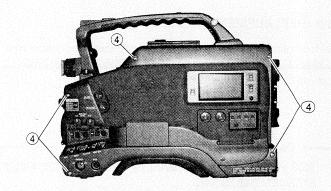


Fig.1-2-3 (1) How to open the right side cover.

(2) Open the right side cover towards the front.

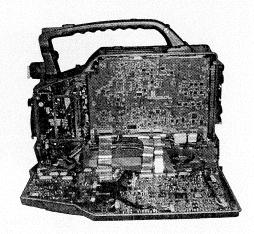


Fig.1-2-3 (2) Diagram with the right side cover open

1.2.4 How to remove the bottom cover

(1) Remove the four screws (5) to remove the bottom cover.

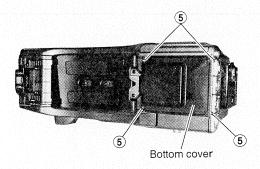
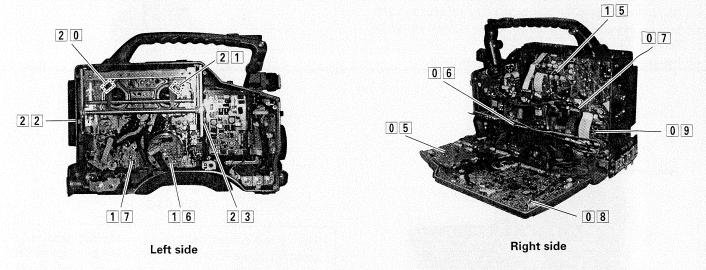
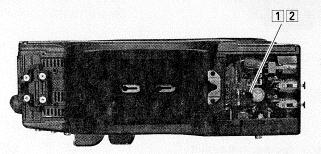


Fig.1-2-4 How to remove the bottom cover

1.3 HOW TO MAKE A DIAGNOSTICS OF THE BOARD

1.3.1 Main board layout diagram





Bottom side (connector box)

Board name	Board layout position	Remarks	
01 DR	Camera Head	Section 1.5.1	
020304 ISB/G/R			
05 CP	On the right side cover	Section 1.5.2	
08 AUDIO/LCD		Section 1.6.1	
06 MAIN	On the side of right side cover	Section 1.6.2	
07 SS/RFP		Section 1.6.3	
09 PR		Section 1.6.4	
14 OPERATION			
15 MEC/IF			
16 MDA	On the side of the left side cover		
17 A/C HEAD			
18 MODE SENS			
19 AL SENS			
20 TU REEL FG			
21 SP REEL FG			
22 BEGIN SENS			
23 END SENS			
12 I/O JUNC	Inside the connector box	Section 1.6.4	

Fig.1-3-1 Main Board layout diagram

1.4 REMOVING THE OPTICAL FILTER ASSEMBLY AND OPTICAL BLOCK ASSEMBLY

- (1) Remove the right side cover (refer to the subsection 1.2.3)
- (2) Loosen two screws (6) and two screws (7) then lift up the handle.
- (3) Remove the four screws (8) from the front panel.

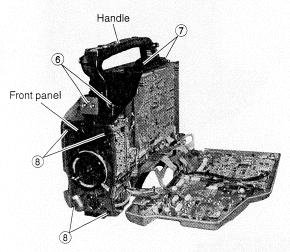


Fig. 1-4-1

(4) Pull out the optical block assembly together with the front panel gently toward the front.

- NOTE -

Be very careful not to scratch or damage the circuit boards and flat cables.

- (5) Loosen the two screws 9.
- (6) Take out the optical filter assembly in the direction of the arrow.

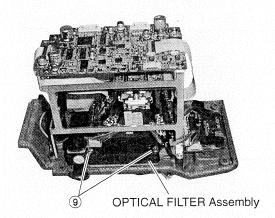


Fig. 1-4-2

- (7) Disconnect the three connectors (B), (©) and (D) direction in order to remove the flexible wires.
- (8) Remove the four screws 10 then remove the DR board.

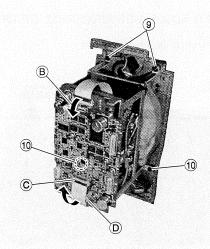


Fig. 1-4-3

 Usually, the optical filter assembly does not need to be removed. However, when it is removed then attached, observe the position relationship between the filters and filter shaft as shown in Fig. 1-4-4.

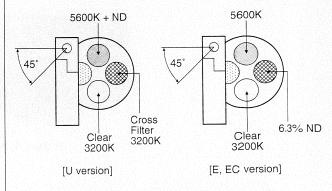


Fig. 1-4-4 Position Relationship Between Filters and Filter Shaft

(9) Remove the four screws $\widehat{\text{11}}$ from the front panel, and separate the front panel from the optical block assembly.

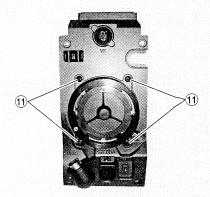


Fig. 1-4-5

NOTES -

- The CCDs are precision-fixed on the prisms. Therefore, even if a CCD fails, it is not possible to replace the deffective CCD alone. The entire optical block assembly should be replaced in such a case.
- The optical block assembly (SCM0986-N0A[NTSC]/ SCM0986-P0A[PAL]) provided as a service part is not equipped the DR board. When replacing the assembly, attach the circuit boards and the bracket to the new optical block assembly before mounting it in the camera head.

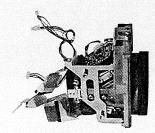


Fig. 1-4-6 Optical Block Assembly

NOTE -

When re-assembling the optical block assembly to the body, make sure that do not injure each wire assembly. Otherwise, it may cause a machine trouble.

1.5 DISASSEMBLY OF THE EACH BOARDS IN CAMERA PART

1.5.1 Disassembly of DR board

- (1) Remove the right side cover. (refer to the subsection 1.2.3)
- (2) Remove the 4 screws from the front panel. (refer to the subsection 1.4)
- (3) Draw out the optical block assembly front wards together with front frame.
- (4) Disconnect the three connectors (B), (C) and (D) direction in order to remove the flexible wires.
- (5) Remove the four screws 10 then remove the DR board.

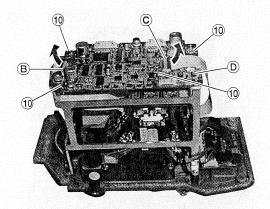


Fig.1-5-1

1.5.2 Disassembly of the CP board

- (1) Open the right side cover. (refer to the subsection 1.2.3)
- (2) Remove the five screws 12.
- (3) Lift the CP board up.

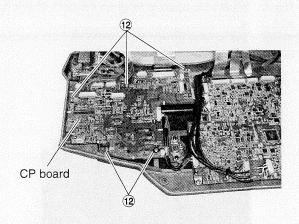


Fig. 1-5-2

1.5.3 Disassembly of the PS board

- (1) Remove two screws and remove the cassette cover.(refer to subsection 1.2.1)
- (2) Remove the left side cover .(refer to the subsection 1.2.2).
- (3) Remove two screws 13 then remove the PS board.

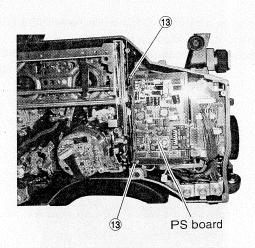


Fig. 1-5-3

1.6 DISASSEMBLY OF THE EACH BOARD IN THE VTR PART

1.6.1 Disassembly of an AUDIO & LCD board

- (1) Open the right side cover.(refer to the subsection 1.2.3) The AUDIO & LCD board is fixed on the back of the right side cover.
- (2) Remove five screws (4) and then AUDIO & LCD board can be removed.

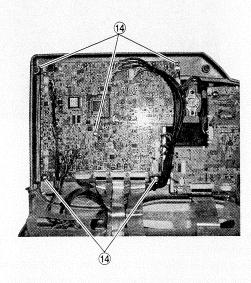


Fig. 1-6-1 (1)

(3) As shown in the Fig. 1-6-1(2), while the AUDIO & LCD board is standing, the diagnosis is possible.

Caution: If the connector is removed from lithium battery, all memory in LCD CPU will be clear. Refer to section 1.13 for more details.

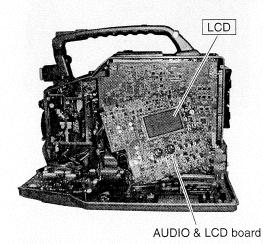


Fig. 1-6-1 (2)

1.6.2 Disassembly of the MAIN board

- (1) Open the right side cover. (refer to the subsection 1.2.3)
- (2) Remove the two screws (15) and put the MAIN board down in front of you.

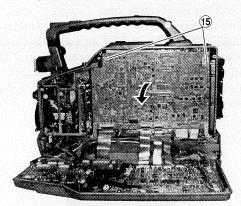


Fig. 1-6-2

1.6.3 Disassembly of the SS/RFP board

- (1) Open the right side cover. (refer to the subsection 1.2.3)
- (2) Remove the two screws and put the MAIN board down in front of you. (refer to the subsection 1.6.2)
- (3) Remove the two screws (6) and put the SS/RFP board down in front of you.

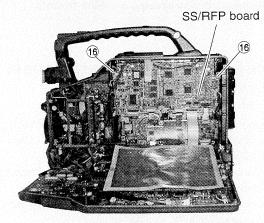


Fig. 1-6-3 (1)

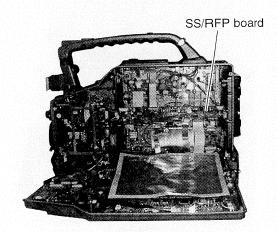


Fig. 1-6-3 (2)

1.6.4 Disassembly of PR board

- (1) Open the right side cover. (refer to the subsection 1.2.3)
- (2) Remove the two screws and put the MAIN board down in front of you. (refer to the subsection 1.6.2)

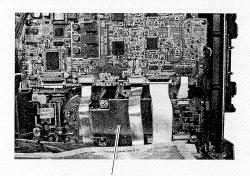


Fig 1-6-4 (1)

Shield cover

(3) Remove the four screws ①, then PR board can be removed.

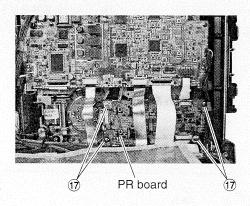


Fig 1-6-4 (2)

1.6.5 Disassembly for diagnosis of the back side of the main deck

- (1) Remove the two screws and put the SS/RFP board. (refer to the subsection 1.6.3)
- (2) Remove the two screws and put the PR board . (refer to subsection 1.6.4)
 - → Diagnosis of the back side of the main deck.

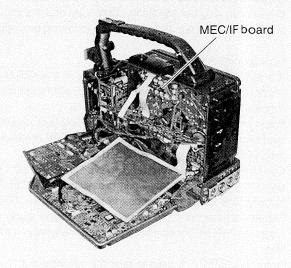


Fig. 1-6-5

1.6.6 Disassembly the I/O JUNC board

- (1) Remove the bottom cover. (refer to the subsection 1.2.4)
- (2) Remove the four screws (8) and then I/O JUNC board can be removed.

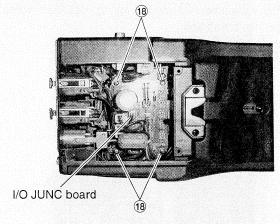


Fig. 1-6-6

1.7 HOW TO TAKE A CASSETTE OUT IN AN EMERGENCY

In case a cassette cannot be ejected because of malfunctions of the motor and mechanism systems, or any tape slack occurs, follow the procedure explained below to take the cassette out.

- (1) Remove the left side cover. (Refer to the subsection 1.2.2)
- (2) While observing the condition of the tape and mechanism, take the cassette out using one of the following procedures.
- How to wind a slack tape
 If a slack tape occurs when the unit is in the AUTO OFF mode, the tape should be wound with the emergency role function.
- (1) Press the "STOP" and the "OPERATE" buttons simultaneously for three sec. or more in the AUTO OFF mode or immediately after the power is turned on.
- (2) Confirm that the LCD counter displays " 63:P .00 00", then press the "REW" button while pressing the "OPERATE" button. (The supply reel winds the tape for approx. 80 ms.)
- (3) Repeat the procedure (2) to wind up the tape slack, then press the "MENU" button to cancel the emergency role function
- (4) Press the "EJECT" button to take the cassette out.
- How to take a cassette out manually
 If the emergency role function does not operate because of
 a malfunction of the reel motor, or the unloading does not
 operate because of a malfunction of the loading motor, fol low the procedure explained below to take a cassette out.
- (1) Take out the SS/RFP board and the PR board. (Refer to the subsection 1.6.3 and 1.6.4)
- (2) Remove the screw 1 and the spring hook (a) in order to loosen the timing belt.
- (3) Take the timing belt out at the mode motor side.

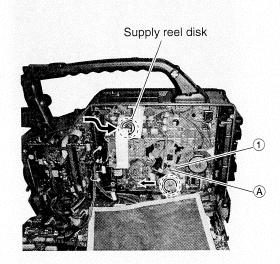


Fig. 1-7 How to take a cassette out manually

- (4) Turning the timing belt in the direction shown in the Fig. 1-7 allows performing of the unloading and eject functions. Any tape slack occurring with this procedure should be wound by inserting a finger from the direction shown with an arrow in the diagram in order to turn the supply reel disk.
 - * Refer to subsection 2.7.12 for instructions on installing the timing belt.

1.8 FUNCTIONS OF INTERNAL SWITCHES

Internal switches are as follows.

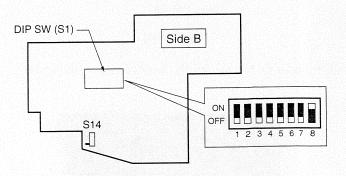


Fig. 1-8-(1) Switches on the CP board

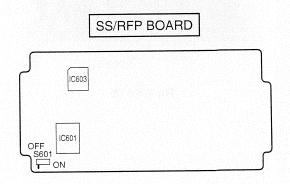


Fig. 1-8-(2) Switch on the SS/RFP board

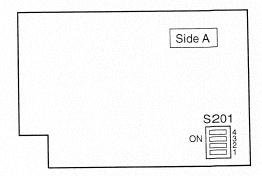


Fig. 1-8-(3) Switch on the MAIN board

1.8.1 Dip switch S1 on the CP board have the functions as described below.

Symbol	No.	Switch Name	Function	Initial
S1	1 2 3 4 5 6 7	Adjustment mode Check mode Shading correction Not use Not use Color MATRIX setting Setup Function setting	Adjustment mode ON/OFF Check mode ON/OFF Shading correction ON/OFF Color MATRIX setting mode ON/OFF ON (0% Setup)/OFF (7.5% setup) : NTSC Do not care (0% setup) :PAL Initial setting of camera's function	OFF OFF (Activated) OFF OFF OFF OFF OFF OFF OFF

Table 1-8-1

· Adjustment mode (S1-1)

Setting S1-1 to ON initiates the adjustment mode. For details of this mode, please read section "3.2.7 Adjustment procedure in the adjustment mode".

· Check mode (S1-2)

and monitor")

Setting S1-2 to ON initiates the check mode.

This mode is used to display the auto white balance and auto iris data which stored in CPU on the viewfinder screen. It will be able to display on the monitor screen, too. (Refer to the "3.2.6 Simultaneous display in both viewfinder

(This mode do not use for adjustment)

— CHECK MODE —			
R-G	: *		
B-G	: *		
R GAIN LEVEL	: *		
B GAIN LEVEL	: *		
PEAK	: *		
APL	: *		
NAM ERROR	: *		
GAIN *dB	: *		
1			

R-G/B-G

This shows the R,G,B signal input to the CPU to control white balance with R-G and B-G.

R GAIN LEVEL / B GAIN LEVEL

These two items of data show the control signal level for a white balance of R and B channels.

PEAK

This data shoes the peak-hold value of the signal in 1 vertical scanning period.

APL

This data shows the average value of video signal level.

NAM ERROR

This data shows the NAM value for use in the auto iris control.

GAIN

This data shows the GAIN value that is set by the [GAIN] switch located on the right side of the main unit. When the full automatic shooting mode is operated, "ALC" is shown.

• Shading (S1-3)

Setting S1-3 to ON / OFF allows to select whether the camera output signal is to be with Shading correction or not.

Setting	Function	Initial Setting
OFF	Shading correction is activated.	OFF
ON	Shading correction is inactivated.	011

Table 1-8-2

- NOTE -

When shading correction is activated, vartical lines might be appeared on monitor screen.

• Color MATRIX setting (S1-6)

Setting S1-1 to ON initiates the color Matrix setting mode. For details of this mode, please read section "1.15". (This adjustment is usually not necessary to be done. Perform it only when it is required to do so, as the customer want to do special setting.)

Setup(S1-7 : Only for NTSC model)

Setting S1-7 to ON/OFF allows to select whether the camera out signal is to be with setup or not. The factor setting is OFF for with the no setup. The signal level does not change by changing the position of this switch. (Adjustment after switching is not necessary).

Function setting (S1-8)

The initial setting described in table 1-8-3 and 1-8-4 will be switched according to the setting of S1-8.

S1-8	NTSC *	PAL *
ON	U version	E version
OFF	Japan version	EC version ** [E(x) version]

Table 1-8-3

- Automatically selected for NTSC or PAL by HD frequency.
- ** EC [E(x)] version means CHINA market version. Please refer to section.

Function		S1-8		
		NTSC		PAL
		OFF	ON	Do not care
GAIN	L	0 dB	0 dB	0 dB
	М	6 dB	9 dB	9 dB
	H	9 dB	18 dB	18 dB
V. SCAN		60.5 – 249.7	60.5 – 1966.7	50.4 - 1953.1
ALC GAIN		0 to +12 dB	0 to +18 dB	0 to +18 dB
EEI		1/60 to 1/240	1/60 to 1/240	1/50 to 1/200

Table 1-8-4

The GAIN switch can be set with the [ADVANCED MENU].

1.8.2 Internal switch on CP board (S14)

This switch is used to cut for the communication from CPU to VTR SS/RFP board.

Setting	Function	Initial Setting
VTR	Communicate for VTR SS/RFP board.	
RS-232C	Do not communicate for VTR SS/RFP board and can be communicated for others.	VTR

Table 1-8-5

1.8.3 Internal switch on SS/RFP board (S601)

This switch is used to select the warning cancellation.

Setting	Function	Initial Setting
OFF	The warning detection circuit works.	OFF
ON	(1) It does not enter the warning mode (excluding alarm display).(2) Mechanism operation is available without an AV micro computer (MAIN board).	

Table 1-8-6

- NOTE -

This switch has to be OFF except when warning occurrence requires analysis.

1.8.4 Internal switch on MAIN board (S201)

This switch is to be used to adjust for the DRUM'S charactristic. (refer to subsection 2.5.2)

1.8.5 EEPROM (Camera)

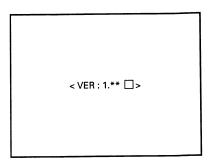
IC9 on the CP board is an EEPROM (electrically erasable and programmable read-only memory), serving to store the data as below.

If the EEPROM fails and has to be replaced, set the data as below.

- Adjusted value with [ADJUSTMENT MODE]
- Setting details for [MAIN MENU] and [ADVANCED MENU]
- · Address data of blemish position
- Auto white balance data (AW1/AW2)
- V-SUB voltage data

1.8.6 Displaying version numbers of the ROMs

When the power is switched ON by the [OPERATE] switch while also pressing the [MENU] button, the version number of the ROM (IC4 on the CP board) is indicated on the view finder screen for 1 second.



☐ mark	Meaning	
U	U version	(NTSC)
E	E version	(PAL)
С	EC [E(x)] version	(PAL)
1	Japan version	(NTSC)

- NOTE -

If the ROM (IC4 on the CP board) is replaced, SYSTEM RESET is required. (refer to the subsection 1.8.7.)

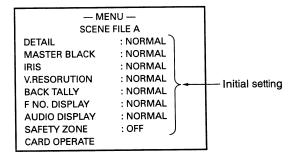
1.8.7 SYSTEM RESET

When the power is switched ON by the [OPERATE] switch while also pressing the [SET] button, the system is reset and data set at MENU screen returns to the initial setting.

The items to be initialized with the system reset are shown below.

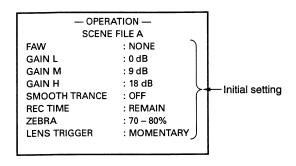
<ltems which are set to be initialized>

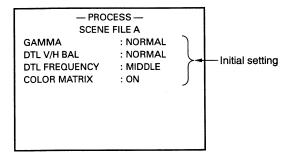
• Setting data of [MAIN MENU]



• [ADVANCED MENU] screen

The details for FILE A and FILE B set at the [SCENE FILE] which will be initialized.





· Other initial setting

Functions	Initial setting values
SHUTTER	NTSC 1/100
V. SCAN	PAL 1/120 NTSC 1/100.2 PAL 1/120.1
STATUS LOLUX FULL AUTO	STT 0 OFF OFF
W. BAL A	R ch 84 B ch 156
W. BAL B	R ch 84 B ch 156

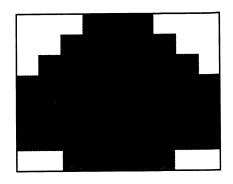
Table 1-8-7

<Items of which the setting will not be initialized>

- Setting date for [ADJUSTMENT MODE] and [SERVICE MENU].
- Setting for mechanical switches.

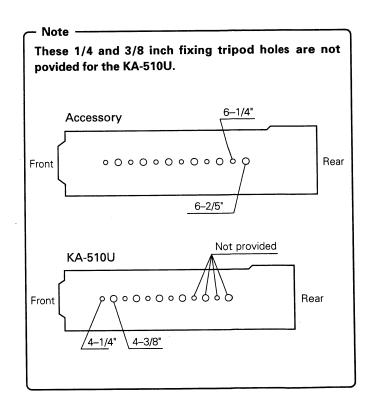
1.8.8 Detect area of Auto Iris

The exposure detection system used for the Auto Iris is based on a zone pattern that assigns a priority according to the probable important subject area.



1.8.9 Tripod base

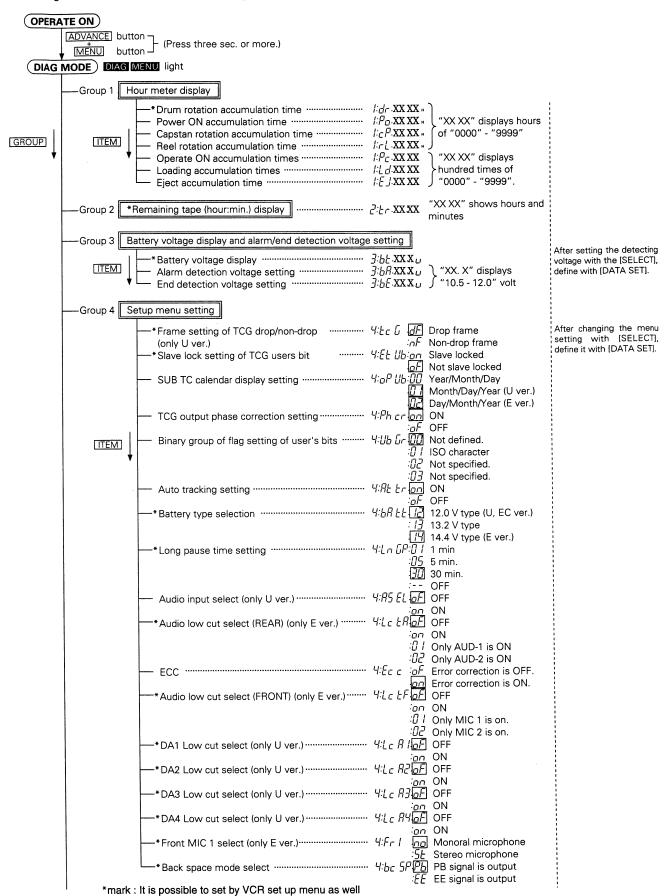
See the KA-510U service manual No. 60065 for servicing. The tripod is not exactly same as KA-510U. See note for the difference.



1.9 DIAG MODE

1.9.1 Structure of DIAG mode

DIAG (diagnostics) mode is used for service operation. There are nine groups as shown in the Fig. 1-9-1.



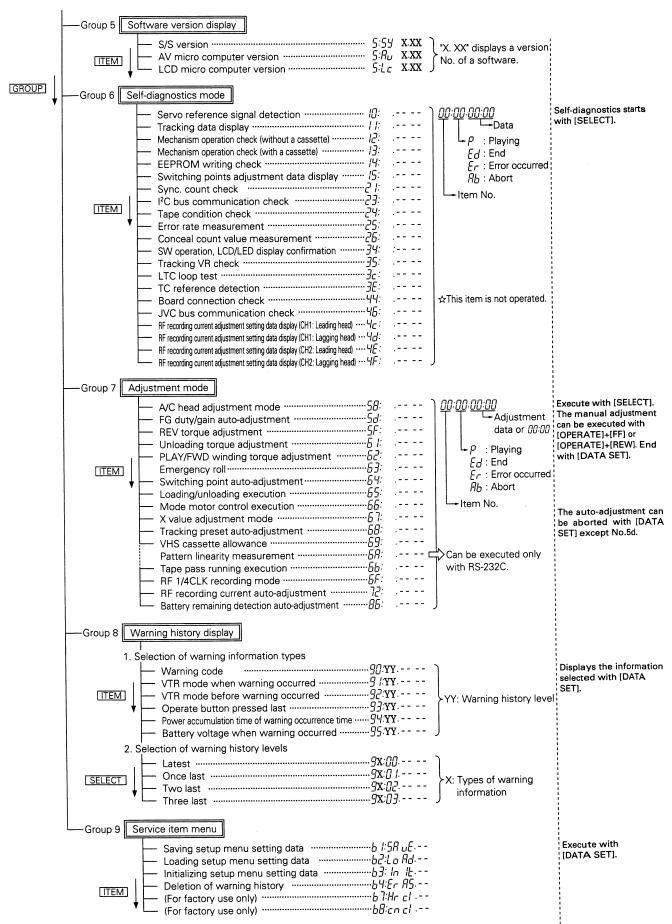


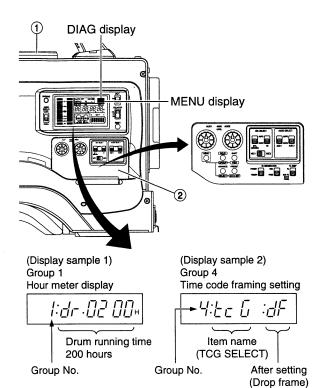
Fig. 1-9-1 DIAG MODE

1.9.2 How To Select Items

- (1) Set the [POWER SW] to ON, then open the operation cover ①.
- (2) Initiate DIAG mode.

Open the door ② at the TIME CODE/SETUP MENU setting section, then hold the [MENU] button for three sec. or more while pressing the [ADVANCE] button.

→ [MENU] and [DIAG] display light on the display and the DIAG menu appears on the counter display.



(3) Select a group.

Switch the group display of the counter display by pressing the [GROUP] button.

[Group No. display]

Group 1:"1" — Hour meter display and individual reset (7 items. See Fig. 1.9.1.)

Group 2: "2"— Remaining tape (hour:min.) display (1 item. See Fig. 1.9.1.)

Group 3: "3" — Battery voltage display and alarm/end detection voltage setting
(3 items. See Fig. 1.9.4.)

Group 4: "4" — Setup menu setting (12 items. See 1.9.5.)

Group 5: "5" — Software version display (3 items. See 1.9.6.)

Group 6: "10" - "4F" — Self-diagnosis mode (21 items. See 1.9.7.)

Group 7: "58" - "86" — Adjustment mode (17 items. See 1.9.8.)

Group 8: "9 " — Warning history display (6 items. See 1.9.9.)

Group 9: "b " — Service item menu (6 items. See 1.9.10)

(4) Select the item in the group.

Pressing the [ITEM] button allows display of the desired item on the counter display.

1.9.3 How to end the DIAG mode

Pressing the [MENU] button to clear the DIAG mode.

1.9.4 How to set the battery alarm/end detection voltage setting (Group 3)

Alarm/end detection voltage setting can be set with the voltage values while 12 V battery is used. Which means that the alarm/end is detected at a voltage with 1.1 times the display voltage with a 13.2 V battery and 1.2 times with a 14.4 V battery.

Example) Setting with 10.5 V: 13.2 V type \rightarrow 10.5 x 1.1 =11.6 V 14.4 V type \rightarrow 10.5 x 1.2 = 12.6 V

[How to operate]

- (1) Initiate the DIAG mode and display the following items. (See the section 1.9.2.)
 - Alarm detection voltage display

• End detection voltage display

- (2) Set the detection voltage by pressing the [SELECT] button.
- ightarrow Display data blinks. The display data increase every 0.1 V each time the [SELECT] button is pressed.
- → While the display data is blinking, pressing the [MENU] button allows display of the "Abort" sign for approx. two sec., then the DIAG mode ends without saving the data.

- (3) Press the [DATA SET] button.
- → The setting data is saved in the EEPROM. During saving, the SAVE display appears for one sec.approx.

If the alarm detection voltage is set lower than the end detection voltage, the alarm display occurs when the battery voltage falls to the alarm detection voltage. End display appears in several seconds regardless of the end detection voltage.

1.9.5 How to set the setup menu (Group 4)

With a setup menu setting of DIAG mode, menu settings for both users and services are available.

- (1) Initiate the DIAG mode and select the setup menu item. (See the section 1.9.2.)
- (2) Select the setting values with the [SELECT] button.
- (3) Press the [DATA SET] button.
- → The setting data is saved in the EEPROM. During saving, the SAVE display appears for one sec.approx.

Menu names	Counter displays	Details
TCG DROP/NON-DROP (only U version)	4:5c G :dF :nF	Menu for users (See page 64 of the instruction manual.)
U-BIT SLAVE ON/OFF	4:EE Ub:an :aF	Menu for users (See page 64 of the instruction manual.)
SUB TC DATE STYLE	4:aP Ub:00 :0 I :02	Selection of the data order of the SUB TC U-BIT (Year/Month/Day calendar) 00: Year/Month/Day 01: Month/Day/Year 02: Day/Month/Year
PHASE CORRECTION	4:Ph cr:on :oF	Selection whether to execute the phase compensation of TC OUT terminal output on: Execute the phase compensation oF: Not execute the phase compensation
U-BIT BINARY GROUP FLAG	4:U6 Gr:00 :0 I :02 :03	Setting of the binary group flag of the user's bits 00: Not appointed as character sets 01: ISO character 02/03: Not specified
AUTO TRACKING	4:AL Er:an :aF	Selection whether to operate the auto tracking during the PLAY mode. on: Operate oF: Not operate. At this time, the tracking VR inside the connector box is effective.
BATT. TYPE SELECT	4:68 EE: 12 : 13 : 14	Menu for users (See page 64 of the Instruction manual.)
LONG PAUSE TIME	4:Ln GP:0 1 :05 :30 :	"" (prohibition of long pause) cannot be set at the menu for users (see page 64 of the Instruction manual).
AUDIO INPUT SELECT (only U version)	4:85 EL:oF :on	Selection for factory use oF: Normal mode on: Factory use mode AUD1 MIC2 AUD2 MIC1 AUD1 AUD2 MIC1 MIC2
AUDIO LOW CUT SELECT (REAR) (only E version)	4:Lc EA:of :on :0 I :02	Menu for users (See page 64 of the Instruction manual.)
ECC	4:Ec c :on :oF	ON/OFF of the cancellation circuit of the error compensation on: Compensation errors. oF: Non compensation errors.
AUDIO LOW CUT SELECT (FRONT MIC) (only E version)	4:Lc EF:oF :an :0 1 :02	Menu for users (See page 64 of the Instruction manual.)
DA1 LOW CUT SELECT (only U version)	4:Lc A l'of	Menu for users (See page 64 of the Instruction manual.)
DA2 LOW CUT SELECT (only U version)	4:Lc A2:oF :on	
DA3 LOW CUT SELECT (only U version)	4:Lc R3:aF :an	
DA4 LOW CUT SELECT (only U version)	4:Lc A4:oF :on	
FRONT MIC1 SELECT (only E version)	4:Fr 1 :on :SE	Menu for users (See page 64 of the Instruction manual.)
BACK SPACE MODE SELECT	4:6c 5P:P6 :EE	Menu for users (See page 64 of the Instruction manual.)

1.9.6 Software version display (Group 5)

These items allow confirmation of software versions in use without removing the outer case of the set. The details of the displays are shown below.

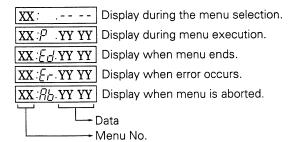
Menu names	Counter display	Board names Symbol No.	Remarks
SYSCON/SERVO version	5:59 <u>x.xx</u>	SS/REP board IC603	PLSC1235-V <u>X-<u>XX</u></u>
AV micro computer version	5:Au <u>X:XX</u>	MAIN board IC101	PLSC1236-V <u>X</u> - <u>XX</u>
LCD micro computer version	5:Lc <u>X</u> : <u>XX</u>	AUDIO & LCD board IC401	PLSC1237-V <u>X-XX</u> (E Version) PLSC1262-V <u>X-XX</u> (U Version)

Table 1.9.6 (1) Software version display

1.9.7 Self-diagnosis mode (Group 6)

Twenty-one menus are provided in the self-diagnosis mode to check the internal operation of the set. Pressing the [SELECT] button after selecting a menu allows starting of the self-diagnosis

At this time, the following displays appear on the counter display.



(1) Detection of servo reference signal



This menu allows checks if the servo reference signal is being supplied normally to the S/S micro computer.

[How to operate]

During the above a menu is displayed, the result of the diagnosis is displayed when the [SELECT] button is pressed.

If an error display appears, check if the TSR signals (75 Hz) generated from DCI-P (MAIN board IC206-pin120) is supplied to the S/S micro computer (SS/RFP board IC601-pin67).

(2) Tracking data display



This menu allows display of the present tracking phase data.

[How to operate]

During the above a menu is displayed, the tracking data (hexadecimal number) is displayed when the [SELECT] button is pressed.

Display sample [/ / :Ed:05:bF

In case the tracking data during the alignment tape MSHP-X playback is out of the area either the "6097" H - "61C1" or the "0000" H - "0EA8" H, X values may be misadjusted.

(3) Mechanism operation check (without a cassette)

12: .----

This menu is used for checking the mechanism operation.

[How to operate]

With the above display, pressing the [SELECT] button allows the starting of the mechanism automatically without inserting a cassette tape to check if there is any abnormality in the mechanism. The result of the diagnoses is displayed as follows.

- Normal 1 2:Ed:00 00

In the data area of the error display, the data "X", "Y" and "Z" (hexadecimal number) which indicate abnormal points are displayed. Correspond them to the table below in order to detect any abnormal occurrence points. In the tables, the mark "O" is provided for the points where an abnormality occurs. For example, if "12: ER. 00 40" is displayed, it means that data "Y" is "4", so that you can tell that the abnormality of "Capstan motor does not rotate" has occurred by Table 1.9.7 (2).

Display "X"	0	1	2	3
Unloading failed.			0	0
Loading failed.		0		0

Table 1.9.7 (1) Mechanism operation abnormality display "X"

Display "Y"	0	1	2	3	4	5	6	7
Capstan motor does not rotate.					0	0	0	0
Drum motor does not rotate.			0	0			0	0
Reel brake does not work.		0		0		0		0

Table 1.9.7 (2) Mechanism operation abnormality display "Y"

Display "Z"	0	1	2	3	4	5	6	7	8	9	Α	b	С	d	Ε	F
TU reel does not rotate.									0	0	0	0	0	0	0	0
SUP reel does not rotate.					0	0	0	Ö					0	0	0	0
Condensation has occurred.			0	0			0	0			0	0			0	0
Tape LED abnormality		0		0		0		0		0		0		0		0

Table 1.9.7 (3) Mechanism operation abnormality display "Z"

(4) Mechanism operation check (with a cassette)

| ∃: .----

This mode is used for checking a mechanism operation.

[How to operate]

During the above displays, inserting a cassette tape allows the start of the mechanism automatically in order to diagnose if there is any abnormality.

In the data area of the error display, the data "X" and "Y" (hexadecimal numbers) which indicate abnormal points are displayed. Correspond them to the table below to detect any abnormal occurrence points. In the table below, the mark "O" is provided for the points where an abnormality occurs.

Display "X"	0	1	2	3	8	9	Α	b
Unloading failed.					0	0	0	0
Loading failed.			0	0			0	0
TU reel abnormality		0		0		0		0

Table 1.9.7 (4) Mechanism operation abnormality display "X"

Display "Y"	0	2	4	6	8	Α	С	Ε
SUP reel abnormality					0	0	0	0
End sensor abnormality			0	0			0	0
Begin sensor abnormality		0		0		0		0

Table 1.9.7 (5) Mechanism operation abnormality display "Y"

(5) EEPROM writing check

14: .----

This menu allows checks if the data has been written to EEPROM (SS/RFP board IC606) correctly or not.

[How to operate]

During the above display, pressing the [SELECT] button allows a start of the diagnosis and displays the results as follows.

In case an error display appears, the EEPROM may be damaged.

(6) Switching points check



This menu allows us to measure the switching points during playback.

[How to operate]

After pressing the [SELECT] button during the above display, insert a cassette tape in order to initiate the PLAY mode. An S/S micro computer starts measuring the switching points and displays the results of the measured data (hexadecimal numbers) as follows.

The measured data "YY" should be in the area between "0C" H - "F4" H. If it is out of this area or an error display appears, check the switching point auto-adjustment (Menu No. 64) and also if an HID signal (position information of a rotation head) and SPA signal (recording position information of ITI signal on the tape pattern, SS/RFP board IC601-pin56) are correctly supplied to S/S micro computer.

(7) Sync. count check

This menu allows us to check if the DCI-P (MAIN board IC206) can read the playback signal data correctly or not.

[How to operate]

After pressing the [SELECT] button during the above display, insert a cassette tape in order to initiate the PLAY mode. The DCI-P starts checking the sync. data playback signals for each head and displays the result as follows.

In case the data cannot be detected correctly, an error display as above appears.

Correspond the display data "Y" to the table below in order to find out which head's output has an abnormality.

Display "Y"	0	1	2	3	4	5	6	7	8	9	Α	b	С	d	Ε	F
CH2 Primary head									0	0	0	0	0	0	0	0
CH2 Trailing head					0	0	0	0					0	0	0	0
CH1 Primary head			0	0			0	0			0	0			0	0
CH1 Trailing head		0		0		0		0		0		0		0		0

Table 1.9.7 (6) Sync. count error data

In case the error display appears, there may be some dust on the rotation head or its service life is coming to an end, also the RF equalizer (SS/RFP board IC301, IC401) may be misadjusted or DCI-P (MAIN board IC206) may be damaged.

(8) I2C bus communication check



This menu allows us to diagnose if the AV micro computer (MAIN board IC101) communicates correctly with each of the digital process ICs on the MAIN board.

[How to operate]

During the above display, pressing the [SELECT] button allow us to start diagnosis and display results as follows.

If any communication error occurs, data "X", "Y" and "Z" which indicate the abnormality points are displayed on the above error display. Correspond them to the table below in order to find out in which IC the communication abnormality has occurred.

Display "X"	0	1	2	3	4	5	6	7	8	9	Α	b	С	d	Ε	F
AUDIO-2(IC702)									0	0	0	0	0	0	0	0
AUDIO-1 (IC700)					0	0	0	0					0	0	0	0
SHUFF (IC224)			0	0			0	0			0	0			0	0
ECC-2 (IC217)		0		0		0		0		0		0		0		0

Table 1.9.7 (7) I²C bus communication error data "X"

Display "Y"	0	4	8	С
ECC-1 (IC216)			0	0
DCI-P (IC206)		0		0

Table 1.9.7 (8) I²C bus communication error data "Y"

Display "Z"	0	1
DCI-R (IC201)		0

Table 1.9.7 (9) I²C bus communication error data "Z"

(9) Tape condition check

24: .----

This menu judges the tape playback condition from the numbers of errors detected by DCI-P (MAIN board IC206) during playback and displays the results classified by four different levels.

[How to operate]

During the above display, press the [SELECT] button, then insert a cassette tape to initiate the PLAY mode to display the tape conditions as follows.

Z4:Ed.00 00Hardly any errorsZ4:Ed.00 01Some errorsZ4:Ed.00 02Many errorsZ4:Ed.00 04Normal playback is not possible.

If error rate level "4" is displayed, there may be some dust on the rotation head or its service life is coming to an end, The RF equalizer (SS/RFP board IC301, IC401) may be misadjusted or the DCI-P (MAIN board IC206) may be damaged.

(10) Error rate measurement



This menu displays how many inner errors have occurred at the sync. block during two frames.

[How to operate]

Press the [SELECT] button, then insert a cassette tape to initiate the PLAY mode in order to display the error rate (hexadecimal numbers) as follows.

(11) Concealed count

This menu displays the numbers of error corrections of the video data carried out by the ECC (MAIN board IC216, IC217) per frame.

[How to operate]

Press the [SELECT] button, then insert a cassette tape in order to initiate the PLAY mode. The AV micro computer starts measuring the concealed count values in order to display the result as follows.

(12) SW operation, LCD/LED display confirmation

This menu is used for checking if the OPERATE SW and LED/LCD displays are operating correctly.

[How to operate]

Press the [SELECT] button to initiate this menu. The operation check is available with the following procedures.

- While the FF, REW, STOP, PLAY or EJECT button is pressed, the corresponding LED lights.
- While the [PRESET] button is pressed, all the segments of LCD light
- While the [RESET] button is pressed, all the segments of the LCD turn off.
- The switch operation can be checked with a display on the COUNTER DISPLAY.

- A: [COUNTER] switch setting
 - 2: "UB" side, 1: "TC" side, 0: "CTL" side
- B: [TC GENERATOR] switch setting
 - 1: "PRESET" side, 0: "REGEN" side
- C: [TC GENERATOR] switch setting
 - 1: "REC" side, 0: "FREE" side
- D: [TC DISP] switch setting
 - 1: "TC" side, 0: "SUB TC" side

(13) Tracking VR test

This menu is used for an operational check of the tracking VR inside a connector box.

[How to perform the operation]

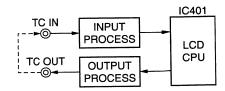
Set the auto tracking setting "4: At tr" of the setup menu to "oF", then select the tracking VR test "35: .-- --". In this condition, pressing the [SELECT] button allows to display

When the tracking VR is turned on, if the display data varies beyond the area between "40" - "C0", the tracking VR is normal.

(14) LTC loop test



This menu diagnoses the input/output circuit of the LTC by checking if the LTC reader (AUDIO&LCD board IC401) correctly reads the test signals generated from the LTC generator (AUDIO&LCD board IC401).



[How to operate]

During the above display, press the [SELECT] button, then carry out the loop connection between the TC IN terminal and the TC OUT terminal.

The results of the diagnostics are displayed as follows.

• During execution 3: P. . D. D. (if the loop connection is now provided, the display will not be changed.)

NormalAbnormal

3c:Ed:00 00 3c:Er:00 00

(15) TC reference signal detection

This menu allows to check if any FRP signals (AUDIO&LCD board IC401 - pin64) which are standard for the running of the time code data, are being supplied to the TC generator.

[How to operate]

During the above display, pressing the [SELECT] button allows to start diagnostics and displays the results as follows.

● Normal <u>3E:Ed:00</u>

● Abnormal *∃E:Er-00 00*

(16) Board connection check

44: .-- --

This menu is not operated because it is dummy.

(17) JVC bus communication check

This menu allows to diagnose if the S/S micro computer (master CPU) and each slave CPU (AV micro computer, LCD micro computer) are communicating correctly.

[How to operate]

During the above display, pressing the [SELECT] button allows to start the diagnosis and displays the results as follows.

• Normal 46:Ed:00 00

● Abnormal 45: Er · □□ / X (X:3 = AV micro computer, 5 = LCD micro computer)

When any communication error occurs, it locates which of the communications with the CPU caused the error and displays the information on the above error display.

(18) RF record current adjustment data display

4c:	CH1 Leading head
4d:	CH1 Lagging head
4E:	CH2 Leading head
ЧF:	CH2 Lagging head

This menu is used for confirming the adjustment values set by a recording current auto adjustment.

[Operation]

During the above display, pressing the [SELECT] button allows us to display the adjustment values for each head with hexadecimal numbers.

4c:Ed:00 YY	CH1 Leading head adjustment data
	CH1 Lagging head adjustment data
4E:Ed:00 YY	CH2 Leading head adjustment data
4F:Ed:00 YY	CH2 Lagging head adjustment data

1.9.8 Adjustment mode (Group 7)

There are two menus which are provided for the adjustment mode; an auto adjustment menu to carry out the adjustment automatically and a setting menu to initiate the adjustment mode. How to execute each menu is explained in the corresponding adjustment item or the table below.

Menu names	Display	VTR operation	Remarks
Search audio x1 playback	5月: (while menu is selected)	Search audio is output during the PLAY mode. It accepts a VHS cassette, then the tape is run with the VHS SP mode speed. However, the picture and the HiFi audio cannot be played back.	adjustment
Capstan FG duty/gain auto adjustment	5点: (while menu is selected)	Adjust the duty ratio of the capstan FG to 50%. Carry out the gain adjustment of the capstan FG. (stop servo adjustment) No operation can be executed during the auto adjustment.	3.4.1 Capstan FG duty adjustment

Table 1.9.8 (1) Adjustment modes-1/3

Menu names	Display	VTR operation	Remarks
Reverse torque adjustment	「デ: (while menu is selected)	It accepts a torque cassette for the VHS. Winding torque adjustment during the running of the REV is available. While the menu is being executed, the tape is always run by a capstan motor drive even if the FF/REW button is pressed. The tape speed of the search REV mode is then fixed to -1X speed.	2.9.2 Reverse torque adjustment
Unloading the torque adjustment	[: (while menu is selected)	It accepts a torque cassette for the VHS. During the search REV mode, the supply reel is rotated with a winding torque while unloading. While the menu is executed, the tape is always run by a capstan motor drive even if the FF/REW button is pressed. The tape speed of the search REV mode is fixed to -1X speed.	2.9.1 Unloading torque adjustment
PLAY torque adjustment	についます。 ニー・ー (while menu is selected)	It accepts a torque cassette for VHS. A winding torque adjustment of the take-up reel during the FWD is available. While the menu is executed, the tape is always run by a capstan motor drive even if the FF/REW button is pressed. The tape speed of the search REV mode is fixed to normal speed.	2.9.3 PLAY torque adjust- ment
Emergency roll mode	(while menu is selected)	In case abnormal tape slack occurs, it drive the reel motor with low torque to wind up the slacked tape.	Refer to the section "1.7 HOW TO TAKE A CASSETTE OUT IN AN EMERGENCY".
Switching point auto adjustment	등년: (while menu is selected)	The switching point adjustment is carried out automatically.	3.4.3 Playback switching point adjustment
Manually loading/unloading	(while menu is selected) [5:P	The loading and unloading can be carried out without inserting a cassette. If a cassette is already inserted, it eject the cassette, then starts this menu.	[How to operate] Select the menu with the [SELECT] button, then press the button below while pressing the [OPERATE] button. [FF]: Loading [REW]: Unloading
Manual loading motor control	(while menu is selected) [The loading motor can be rotated manually without inserting a cassette. If a cassette is already inserted, it eject the cassette, then start this menu.	[How to operate] Select the menu with the [SELECT] button, then press the button below while pressing the [OPERATE] button. [FF]: Rotates for 34 ms towards the loading direction [REW]: Rotates for 34 ms towards the unloading

Table 1.9.8 (1) Adjustment modes-2/3

Menu names	Display	VTR operation	Remarks
X value adjustment	についます。 ニューニー (while menu is selected)	Auto tracking becomes OFF. Tracking the VR becomes invalid and playback starts at the tracking preset position.	2.11.5 X value adjustment
Tracking Preset auto adjustment	(while menu is selected)	The tracking is varied and the tracking position where an RF level becomes maximum, is searched automatically.	3.4.2 Tracking preset adjustment
VHS cassette acceptance	59: (while menu is selected)	It accepts a VHS cassette.	[How to operate] [SELECT]: Play [DATA SET] : End
Linearity measurement	다다: (while menu is selected)	Linearity measurement mode is initiated with the RS-232C control. Auto tracking becomes OFF and the tracking VR becomes invalid.	2.12 CHECK OF LINEARITY
Tape pass running	(while menu is selected) [:]	When a cassette is inserted, it repeats PLAY mode (8 times) and SRH REV mode (7 times) on the same section of the tape (approx. 30 sec.), then eject the tape. While the running is being executed, the number of the executed running is displayed at "Y" with hexadecimal numbers. While the running is being executed, if the [DATA SET] button is pressed or the VTR mode is changed, or a tape end is detected during PLAY, an error message is displayed.	[How to operate] Select the menu by pressing the [SELECT] button, then insert a cassette on which a recording has been done.
RF REC1/4 CLK	(while menu is selected) [F:F:	Recording 1/4-divided clock (approx. 12.4MHz)	[How to operate] Select the menu by pressing the [SELECT] button, then record the internal clock.
RF recording current auto adjustment	קב: (while menu is selected)	It varies the recording current value with 8 steps at every 4 times. (approx. 2 sec.) and records the internal oscillation clock (approx. 12.4 MHz). This process is repeated four times. (It takes a little more than four minutes.) Then, it plays back the recorded section automatically and detects the best recording current value out of the output levels for each head.	
Battery voltage detection auto adjustment	(while menu is selected)	S/S micro computer (SS/RFP board IC601) measures the voltage at pin 68 and writes the difference between that value and the optimum value as the compensation value of the battery detection circuit on the EEPROM.	defection circuit adjustment

Table 1.9.8 (1) Adjustment modes-3/3

1.9.9 Warning history display

In the menu of this group, the following data regarding the last four warnings occurring can be displayed.

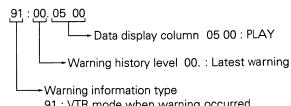
Display at the selected menu	Type of warning information
9(): YY :	Warning code (Refer to the section 1.11)
9 /:YY	VTR mode when the warning occurred. (Refer to the table 1.9.9 (2).)
90:YY	VTR mode before the warning occurred. (Refer to the table 1.9.9 (2).)
93:YY	The last operate button to be pressed when the warning occurred. (Refer to the table 1.9.9.(3).)
94: Y Y	Power ON accumulated time [unit: hour] when the warning occurred.
95:YY	The battery voltage [unit: V] when the warning occurred.

Table 1.9.9 (1) Types of warning information

[How to operate]

- (1) Initiate the DIAG mode and select the group 8. (Refer to the
- (2) Select the type of warning information with the [ITEM] but-
- (3) Select the warning history level with the [SELECT] button.
- (4) Pressing the [DATA SET] button allows us to display data regarding the selected information.

[Display example]



91: VTR mode when warning occurred

Data	VTR mode	Data	VTR mode	Data	VTR mode
03 00	SEARCH FWD	0d 00	STOP	80 O I	REC BACK SPACE
04 00	SEARCH REV	13 00	SKIP FWD	80 O2	REC PAUSE
05 00	PLAY	14 DD	SKIP REV	<i>80 0</i> 4	REC PLAY
07 00	NO CASSETTE (EJECT)	19 00	FF	80 IO	REC
09 00	EJECT	IR 00	REW	8101	ASSM BACK SPACE
OR 00	NO CASSETTE (INTAKE END)	15 OO	SHORT FF	8104	ASSM PLAY
0c 00	STAND-BY OFF	lc 00	SHORT REW	92 02	REC LOCK

Table 1.9.9 (2) VTR mode data

Data	Operate button	Data	Operate button	Data	Operate button
30 00	EJECT	33 00	REW	42 OO	REC+PAUSE
3 / 00	STOP	40 OO	PLAY	45 00	STANDBY
32 00	FF	4100	REC+PLAY	46 OO	REVIEW

Table 1.9.9 (3) Operate button data

1.9.10 Service item menu (Group 9)

In the menus of this group, the following menus are to carry out the data processing for the setup menu and the hour meter.

Menu selection displays	Functions						
Ь I:SR uE	Save the setting data for the setup menu.						
62:Lo Ad	Set the setup menu to the setting saved at "b 1:58 uE".						
63: In 1E	Set the setup menu to the factory set.						
64:Er AS	Delete the warning history data.						
67:Hr cL	(For factory use only)						
68:cn cL	(For factory use only)						

Table 1.9.10 (1) Service items menu

[How to operate]

- (1) Initiate the DIAG mode and select group 9. (Refer to the section 1.9.2.)
- (2) Select the [ITEM] button on the menu.
- (3) Pressing the [DATA SET] button allows execution. While the data is being written in the EEPROM, the "on" message is displayed for approx. one sec.

[Display example]

bl :SR:uE:on

1.10 HOW TO DETECT THE ALARM

The DY-90 provides alarm display functions in order to inform users of the remaining condition of the tape and battery. This section explains how to detect them. Please refer to page 81 in the INSTRUCTIONS regarding the alarm display details.

Items	Conditions	Detecting methods
Servo lock error "SERVO"	At the IN point of the continuous recording, this occurs if a drum rotation phase error happens for more than 450 micro s or if the capstan motor rotation speed varies more than 6%.	S/S micro computer (SS/RFP board IC601) detects the drum rotation phase from the phase difference between the TSR signal and the ID signal, and the capstan motor speed from the frequency of the CAP x 2FG signal.
Head clog "RF"	This occurs when the RF signal is lacking for one second during the back space operation. (However, it also enters the alarm mode if the signal is lacking for 0.5 second just before ending the back space operation.)	It judges that the RF signal is lacking when the RF level detection circuit output (SS/RFP board IC615 - pin17) becomes lower than 0.27 V.
Lithium battery fault "Li"	This occurs when a lithium battery is exhausted or is not installed.	When the input voltage (AUDIO&LCD board IC 422 -pin3) of the battery backup switching circuit becomes lower than 2.7 V, the signal at the PREEND terminal (pin2) is at a low level. This results in the Alarm mode being entered.
Tape remaining time	This occurs when the remaining tape is less than 2 min. during recording or the recording pause function, or when the tape end is detected during recording.	S/S micro computer (SS/RFP board IC601) detects the tape remaining time from the diameter of the supply reel and the tape end from the end sensor output.
Battery remaining time E 沙红	This occurs when the battery capacity is insufficient.	The S/S micro computer (SS/RFP board IC601) detects the battery voltage from the voltage at pin68. When 12 V battery is used: Approx. 1.19 V When 13 V battery is used: Approx. 1.84 V When 14 V battery is used: Approx. 2.43 V (Alarm detection voltage setting: at 11.1 V)

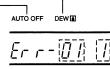
Table 1.10 (1) How to detect the alarms

1.11 ERROR CODES

The DY-90 diagnoses the causes of malfunctions and displays the error codes. The procedures of each error detection are explained below.

Dew condensation indicator:
 Lights when error code is "02:1".

Auto-OFF indicator:
 Lights depending on the error codes.
 When this indicator lights, the VCR will automatically stop the operation or eject the cassette, and VCR does not any operation.



01:1 Disconnection or short circuit of LEDs for leader tape detection

• VTR operation: This ejects a cassette.

If a cassette is not inserted, one cannot be accepted until the warning is released.

• [AUTO OFF] display in the LCD: Not lit.

Causes: Disconnection of the tape LED

How to detect: When the IC601 - pin75 (normally approx.
 1.1 V) becomes 250 ms or more and 3 V or more or 0.5 V or less.

02:1 Condensation

VTR operation: It enters the AUTO OFF mode. When a cassette is not inserted, the drum motor starts rotation. When the condensation is cleared, the warning is released automatically and normal operation will start.

• [AUTO OFF] display in the LCD: Lit.

Causes: Condensation or a malfunction of the DEW sensor

How to detect: When the DEW sensor output (IC601 - pin73)
 becomes 3 V or more, it enters the warning
 mode. When it becomes 2 V or less, the
 warning is released.

32:1 The loading cannot be completed

 VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.

• [AUTO OFF] display in the LCD: Not lit.

 Causes: Malfunction of a mode sensor, a loading motor, an MDA circuit (IC623) or a loading mechanism.

An inferior of a cassette tape.

 How to detect: The loading cannot be completed within eight seconds when it checks the mode sensor output (IC602 - pin19, 20, 21).

32:2 Tape slack during loading

 VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.

• [AUTO OFF] display in the LCD: Not lit.

 Causes: Malfunction of a loading mechanism (Stack of a guide roller) How to detect: When the 800 SP reel FG (IC601 - pin62) pulses (= 20 rotation) or more are output during the loading.

33:1 Unloading cannot be completed

• VTR operation: It enters the AUTO OFF mode.

• [AUTO OFF] display in the LCD: Lit.

• Causes: Malfunction of a m

Malfunction of a mode sensor, a loading motor, an MDA circuit (IC623) or a loading mechanism.

An inferior of a cassette tape.

 How to detect: The unloading cannot be completed within eight seconds when it checks the mode sensor output (IC602 - pin19, 20, 21).

56:3 SP reel over run due to a tape breakage

 VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.

• [AUTO OFF] display in the LCD: Not lit.

Causes: Tape breakage due to abnormal tension, insertion of a damaged tape or scratches on the mechanism running parts.
 Abnormal tape winding in a cassette.

 How to detect: When the SP reel FG (IC601-pin62) becomes a high frequency exceeding the specific limit for 3 seconds or more during the capstan REV mode.

56: 4 TU reel over run due to tape breakage

 VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.

• [AUTO OFF] display in the LCD: Not lit.

• Causes: Refer to the error code "56:3".

 How to detect: When the TU reel FG (IC601-pin 63) becomes a high frequency exceeding the specific limit for 3 seconds or more during the capstan FWD mode.

56:5 The simultaneous detection of begin and end of the tape due to a tape breakage

 VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.

• [AUTO OFF] display in the LCD: Not lit.

 Causes: Tape breakage due to abnormal tension, insertion of a damaged tape or scratches on the mechanism running parts.

A malfunction of the sensor may cause this error due to an exposure to sunlight or incandescence when the unit is used without an outer case.

 How to detect: When both the tape begin sensor (IC601 pin77) and the tape end sensor (IC601 pin76) outputs are of a low level during loading.

56:6 Tape breakage during unloading

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.

Causes:

Tape breakage due to abnormal tension, insertion of a damaged tape or scratches on the mechanism running parts.

• How to detect: When the 1200 SP reel FG (IC601 - pin62) pulses (= 30 rotation) or more are output during unloading.

56:8 Tape breakage during loading

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.

Causes:

Refer to the error code "56:6".

 How to detect: When only the 20 SP reel FG (IC601 - pin62) pulses (= 1/2 rotation) or less are output during loading.

57:1 Short REW cannot be completed

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.

Causes:

Tape breakage due to abnormal tension, insertion of a damaged tape or scratches on the mechanism running parts.

A malfunction of the sensor may cause this error due to an exposure to sunlight or incandescence when the unit is used without an outer case.

Malfunction of the tape end sensor

eration is called a Short REW mode.)

 How to detect: The tape end sensor output (IC601 - pin76) stays at a low level even when the 100 SP reel FG (IC601 - pin62) pulses (= 2.5 rotations) or more are output in the Short REW mode. (Short REW mode: When it detects the tape end soon after a cassette is inserted, it rewinds the tape equivalent to 2.5 rotations of the SP reel with approx. 5x-speed. This op-

57: 2 Skip REV cannot be completed

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.

Causes: Refer to the error code "57:1".

• How to detect: The tape end sensor output (IC601 - pin76) stays at a low level when the SP reel is rotated for five seconds or more in the Skip REV mode.

> (Skip REV mode: When it detects the tape end at the loading end, it rewinds a leader tape at -1X speed. This operation is called a Skip REV mode.)

57: 4 Tape end detection during REV running

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.
- Refer to the error code "57:1". Causes:
- How to detect: The tape end sensor output (IC601 pin76) becomes low level when a tape is wound in the REV direction.

58:1 Short FF cannot be completed

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.
- Causes:

Tape breakage due to abnormal tension, insertion of a damaged tape or scratches on the mechanism running parts.

A malfunction of the sensor may cause this error due to an exposure to sunlight or incandescence when the unit is used without an outer case.

Malfunction of tape begin sensor

 How to detect: The tape begin sensor output (IC601 - pin77) stays at a low level even when the TU reel is rotated for three seconds and the 50 TU reel FG pulses (= a little more than one rotation) are output in the Short FF mode.

(Short FF mode: When it detects a tape beginning soon after a cassette is inserted, it first forwards a tape equivalent to the leader tape with approx. 5x-speed. This operation is called a Short FF mode.)

58: 2 Skip FWD cannot be completed

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.
- Refer to the error code "58:1". Causes:
- How to detect: The tape begin sensor output (IC601 pin77) stays at a low level when the SP reel is rotated for five seconds or more in the Skip FWD mode.

(Skip FWD mode: When it detects a tape begin at the loading end, it first forwards a reader tape at normal speed. This operation is called a Skip FWD mode.)

58: 4 Tape begin detection during FWD running

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.
- Refer to the error code "58:1". Causes:
- How to detect: The tape begin sensor output (IC601 pin77) becomes low level when a tape is wound to the FWD direction.

70:1 Abnormal rotation of a drum motor

- VTR operation: It enter the AUTO OFF mode.
- [AUTO OFF] display in the LCD: Lit. (However, it does not

light during loading).

• Causes: Malfunction of a drum motor inside a drum

assembly or an MDA circuit.

Disconnection of a drum assembly.

Malfunction of a switching regulator circuit

(SS/RFP board IC901)

How to detect: The drum FG (IC601 - pin65) cannot be de-

tected for two seconds or more in the cor-

rect drum motor rotation mode.

71:1 Abnormal rotation of a capstan motor

- VTR operation: It enters the AUTO OFF mode.
- [AUTO OFF] display in the LCD: Lit.
- Causes: Malfunction of a capstan motor or an MDA

circuit inside a capstan motor assembly.

Disconnection of a capstan motor assembly.

Malfunction of a switching regulator circuit

(SS/RFP board IC901)

• How to detect: Any capstan FG (IC601 - pin 64) pulse is not

output for one second or more in the capstan drive mode (PLAY, REC, SEARCH FWD/

REV).

72:1 Tape is slack at the tape supply side during the capstan drive mode

- VTR operation: It enters the AUTO OFF mode.
- [AUTO OFF] display in the LCD: Lit.

Causes: Malfunction of a reel motor or a MDA circuit

(SS/RFP board IC809, Q809 - Q811). Disconnection of the reel motor assembly. Malfunction of the switching regulator circuit (SS/RFP board IC901).

Failure of a reel idler.

How to detect: Any SP reel FG (IC601 - pin62) pulse is not

output while the 6912 capstan FG (IC601 - pin64) pulses (= 4.8 rotation) are generated in the capstan drive mode (PLAY, REC.

SEARCH FWD/REV).

72: 4 SP reel overrun when a cassette is not inserted

- VTR operation: It enters the AUTO OFF mode.
- [AUTO OFF] display in the LCD: Lights.

Causes: Wrong detection of reel FG because of the

interference of pulses.

Malfunction of reel MDA circuit (SS/RFP

board IC809, Q809 - Q811).

• How to detect: When the SP reel FG (IC601 - pin 62) be-

comes a high frequency exceeding the specific limit for 3 seconds or more without in-

serting a cassette.

72:5 SP reel does not rotate during unloading

- VTR operation: It enters the AUTO OFF mode.
- [AUTO OFF] display in the LCD: Lights.
- Causes: Refer to the error code "72:1".

How to detect: Only 20 SP reel FG (IC601 - pin62) pulses (=
 1/2 rotation) are output during unloading.

72:7 SP reel does not rotate during Short REW

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.
- Causes: Refer to the error code "72:1".
- How to detect: Only 100 SP reel FG (IC601 pin62) pulses
 (= 2.5 rotation) or less are output within five
 seconds during the Short REW mode.
 (Short REW mode: When it detects the tape
 end soon after a cassette is inserted, it re winds the tape equivalent to 2.5 rotations of
 an SP reel with approx. 5x-speed. This op eration is called a Short REW mode.)

73:1 Tape slack at the take-up side during the capstan drive mode

- VTR operation: It enters the AUTO OFF mode.
- [AUTO OFF] display in the LCD: Lights.
- Causes: Refer to the error code "72:1".
- How to detect: Any TU reel FG (IC601 pin63) pulse is not output while the 6912 capstan FG (IC601 pin 64) pulses (= 4.8 rotation) are generated in the capstan drive mode (PLAY, REC, SEARCH FWD/REV).

73:4 TU reel overrun without a cassette insertion

- VTR operation: It enters the AUTO OFF mode.
- [AUTO OFF] display in the LCD: Lights.
- Causes: Refer to the error code "72:4".
- How to detect: TU reel overruns without inserting a cassette, and the 40 TU reel FG (IC601 pin63) pulses (= one rotation) or more are output in a second.

73:7 SP reel does not rotate during Short FF

- VTR operation: It ejects a cassette. When a cassette is inserted again and the loading is completed, the warning is released.
- [AUTO OFF] display in the LCD: Not lit.
- Causes: Refer to the error code "72:1".
- How to detect: The tape begin sensor output (IC601 pin77) stays at a low level even if the TU reel is rotated for three seconds and the 50 TU reel FG pulses (= a little more than one rotation) or less are output in the Short FF mode. (Short FF mode: When it detects a tape beginning soon after a cassette is inserted, it first forwards the tape equivalent to the leader tape with approx. 5x-speed. This operation is called a Short FF mode.)

1.12 EEPROM (VTR)

IC606 on the SS/RFP board is an EEPROM which can erase and write electrically and stores the following data regarding DIAG mode.

Stored data	In EEPROM replacement
[Group 1] Data of hour meter	All data will be reset.
[Group 3] Setting data of the battery alarm/end detection voltage	Returns to the factory setting
[Group 4] Setting data of setup menu (Including menus for users)	Returns to the factory setting
[Group 7] Adjusted data set at the Adjustment mode	Returns to the factory setting
[Group 8] Data regarding to the Warning history	All data will be deleted.
[Group 9] Setting data of the setup menu saved at the DIAG menu "b1"	All data will be deleted.
Model name, serial No. (only to be used at the factory)	All data will be deleted.

Table 1.12 (1) EEPROM stored data

When the EEPROM is replaced, the following adjustment data for the group 7 return to the factory setting applies. Make sure to readjust them again.

- (1) DIAG menu No. 5d: Capstan FG duty/gain auto adjustment
- (2) DIAG menu No. 5F: Reverse torque adjustment
- (3) DIAG menu No. 61: Unloading torque adjustment
- (4) DIAG menu No. 62: PLAY torque adjustment
- (5) DIAG menu No. 64: Switching point auto adjustment
- (6) DIAG menu No. 68: Tracking preset auto adjustment
- (7) DIAG menu No. 72:RF record current auto adjustment
- (8) DIAG menu No. 86: Battery voltage detection auto adjustment

1.13 LITHIUM BATTERY

DY-90 employs a lithium battery (nominal voltage: 3 V) for the back up of the LCD micro computer. The data to be backed up is explained below.

- (1) Time code generator data (With free run mode, it keeps on counting during the execution of back up)
- (2) Date/Time data for SUB TC
- (3) Continuous recording IN point data
- (4) CTL counter data

IC422 on the AUDIO & LCD board performs switching to a lithium battery for backup.

This IC switches the power supply of the LCD micro computer to a lithium battery when the main voltage becomes 4.7 V or less. At this time, IC422 switches the "CS" output to low level, the LCD micro computer switches the clock oscillator to X402 and it will be operated with the sleep mode. Also, the IC422 detects the voltage of the lithium battery. When the voltage become 2.7 V or less, it switches the "PREEND" output to low level, then displays the alarm "Li" on the display.

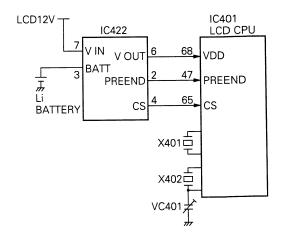


Fig. 1-13-1 Back up circuit

1.14 OPERATIONS OF SWITCHES AND SENSORS

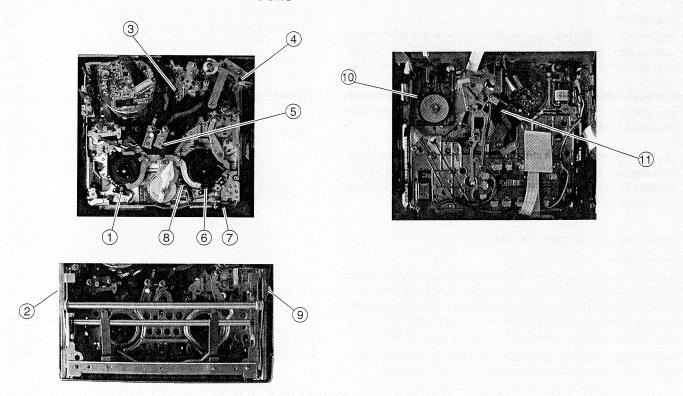


Fig. 1-14-1 Switches and sensors layout

1 Supply reel FG

40 pulses are output during a cycle of the reel disk.

2 End sensor

This detects the tape end.

3 Dew (condensation) sensor

This detects condensation.

5 After loading sensor

This detects the mechanism positions together with the mode sensor $\widehat{\mathbf{1}}$.

6 Tape LED

This illuminates in order to detect the tape end and beginning.

7 Takeup reel FG

This detects the rotation of a takeup reel.

40 pulses are output during a cycle of the reel disk.

7 Cassette switch

Three switches are built in.

Outside switch : It detects pits for mis-erase prevention.

Center switch : It detects a digital S cassette.

Inside switch : Not used.

8 Housing lock switch

Detects the opening and closing of a cassette housing.

9 Begin sensor

Detects a tape beginning.

10 Capstan MR

Generates sine waves with a frequency proportional to the rotation speed with a 2-phase output rotation sensor using MR elements.

11) Mode sensor

Detects mechanism positions and outputs three different signals as explained in Fig. 1.14.2.

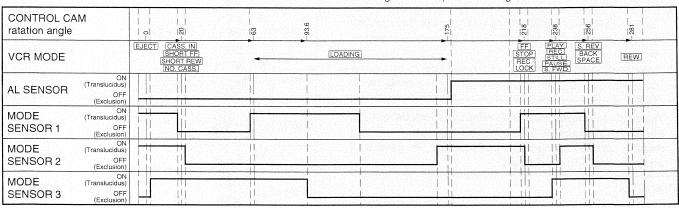


Fig. 1-14-2 Functions of Mode/AL sensors

1.15 How to adjust the color matrix setting

Precautions:

It is possible with the color matrix circuit in the DSP of this unit to alter the color reproduction characteristics by changing the nine different parameter settings. However, it is usually not necessary to change them because each one is set to an initial value which has been carefully selected at the development stage. Such parameter changes are not included in the normal electrical adjustment items.

If such adjustments are still necessary, perhaps in response to a request by a customer, the adjustment procedures described in the subsequent sections should be first studied and understood before being carried out.

1.15.1 How to set the color matrix

Preparation

For color matrix setting, you will need a color chart and a vector scope as a reference for any color reproduction. There is no color chart specified for use in a color matrix setting. Use the one selected by your customer who wishes you to make the adjustment. Fully discuss the customer's needs before carrying out the setting.

A color matrix setting can be accomplished by selecting menu items appearing on the VF and monitor output displays.

MODE	:	М3	M2	М1	DATA
R±(R-G)	:	*	*	Ж	*
R±(R-B)	:	*	*	Ж	*
G+(G-R)	:	Х	*	*	*
G-(G-R)	:	*	Х	*	*
G+(G-B)	:	Х	*	*	*
G-(G-B)	:	*	Х	*	*
B+(B-G)	:	Х	*	*	*
B-(B-G)	:	*	Х	Ж	*
B±(B-R)	:	*	*	*	*

Fig. 1-15-1 Color matrix adjustment display

Follow the steps given below to enable setting.

- (1) Remove the right-hand side cover (See 1.3.1)
- (2) Turn the dip switch S1-6 on the CP board to ON, and the color matrix setting menu will appear on the viewfinder and monitor output displays.
- (3) Move the cursor (blinking character) to the desired item with S11 (ITEM SW) and S12 (SET SW).
- (4) Carry out adjustments with S9 (DOWN SW) and S10 (UP SW) on CP board. The adjustment values M3, M2 and M1 are represented by 0 or 1 and "DATA" by any number between 0 and 31.
- (5) Turn the dip switch S1-6 on the CP board OFF to cancel the color matrix setting menu and to resume the opening menu.

- NOTE

The setting is stored and made effective every time any number is changed for a selected setting item.

Setting the item marked X is not possible (No need to attempt a setting of this item).

Precaution

S13 (MENU SW) on CP board serves as a data reset switch. Pressing this switch during setting causes all the data entered to be cleared, resetting to the initial values.

1.15.2 Details of the individual setting items

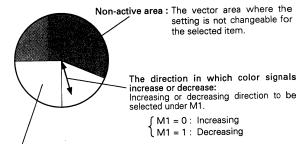
9 parameters can be used, as described above, to change 12 different setting items when color matrix setting. Setting details for these items are given in the Table below.

NOTE

The graphic models in the Table represent the following information.

(Example)

The chart below shows an image display on the vector scope.



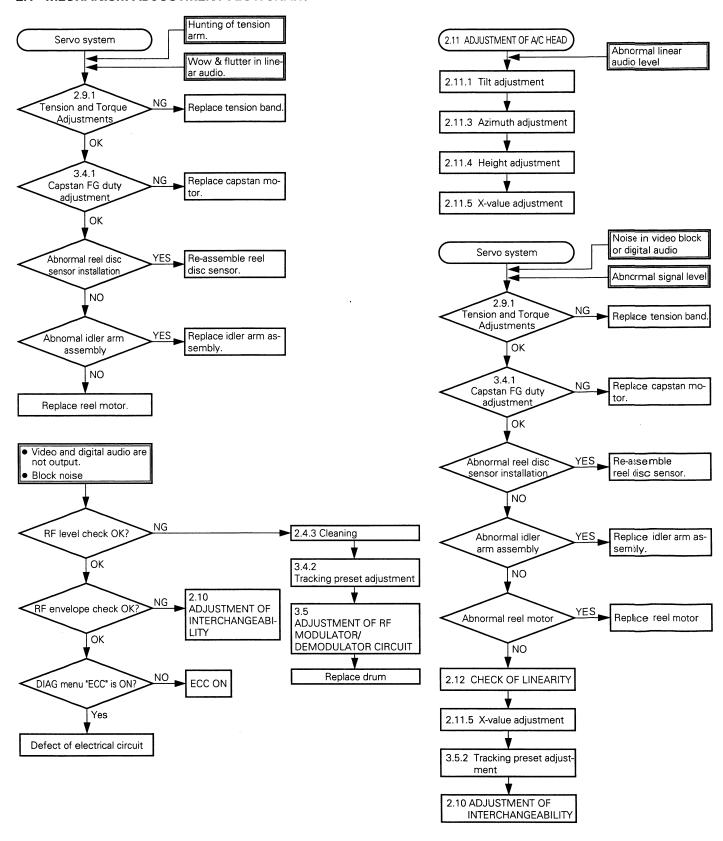
Active area: The vector area where the setting is changeable for the selected item (the area which is selectable under M3 or M2 in some items).

MODE	Graphical representa- tion in the ACTIVE area	M3 0 : Active 1 : Inactive	M2 0 : Active 1 : Inactive	M1 0 : Increase 1 : Decrease	DATA 0 – 31
R±(R-G)	M3	→ 0 or 1	— > 0 or 1	0 or 1	*
R±(R-B)	M3	→ 0 or 1	→ 0 or 1	0 or 1	*
G+(G-R)	M2	×	→ 0 or 1	0 or 1	*
G-(G-R)	M3 //	→ 0 or 1	×	0 or 1	*
G+(G-B)	M2	×	→ 0 or 1	0 or 1	*
G–(G-B)	M3 /	→ 0 or 1	×	0 or 1	*
B+(B-G)	M2	×	→ 0 or 1	0 or 1	*
B-(B-G)	M3	→ 0 or 1	×	0 or 1	*
B±(B-R)	M3 ————————————————————————————————————	→ 0 or 1	→ 0 or 1	0 or 1	*

Table 1-15-1

SECTION 2 MECHANISM ADJUSTMENTS

2.1 MECHANISM ADJUSTMENT FLOWCHART

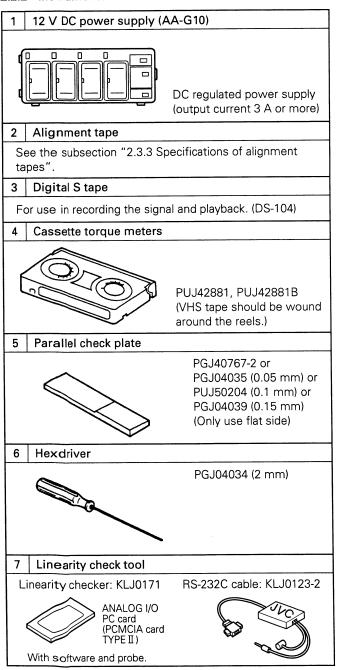


2.2 REQUIRED MEASURING INSTRUMENTS FOR ADJUSTMENTS, STANDARD SETUP

2.2.1 Required measuring instruments for adjustments

Instrument	Condition
Oscilloscope	Capable of measuring 100 MHz or higher bands and calibrated.
Digital voltmeter	Input impedance 10 $M\Omega$ or more, and calibrated.
Audio tester	Must be calibrated.

2.2.2 Instruments



2.2.3 General tools for mechanism adjustments

- Nut driver (5.5 mm)
- Tapered nut driver (PUJ50637)
- Hex. wrenches (0.9 mm, 1.27 mm, 2 mm)
- Phillips screwdrivers (4 mm, 2.6 mm, 2 mm)

3mm : PGJ04037 2.6mm : PGJ04038

- Flat-blade screwdriver
- Precision screwdriver
- Torque driver
- VHS tape (NTSC T-120/PAL T-180)
- DIGITAL S tape (DS104)

2.2.4 Procedure to activate DIAG mode

- 1) While holding the SELECT button depressed, press and hold the MENU button for more than 3 seconds.
- 2) Press the GROUP button to select group 7 (from "58: " to "86: ").
- 3) Press the ITEM button to select the specified menu.
- 4) Press the SELECT button to execute the item. See sub section "1.3.2" for details.

2.3 BEFORE PROCEEDING TO ADJUSTMENT

2.3.1 Precautions

- 1) Before using a soldering iron, be sure to unplug the power cord from the power supply outlet.
- 2) When removing a connector, do not pull the wire section but grasp the plug section.
- 3) In cases of trouble, do not turn adjustment points and potentiometers before the defective point is identified.
- 4) Remove the top and side covers before making any mechanism adjustments.
- 5) Each roller should be replaced independently of the replacement operations for other rollers, and the transport system should be checked every time after a roller has been replaced.
- 6) Before electrical adjustments, be sure to turn on the unit and leave it on for at least 10 minutes or more.
- 7) The oscilloscope probe should be a 10:1 probe unless otherwise specified.

2.3.2 Test point layout for measuring and tracking VR

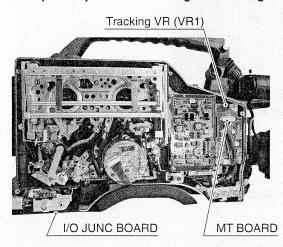


Fig. 2-3-1

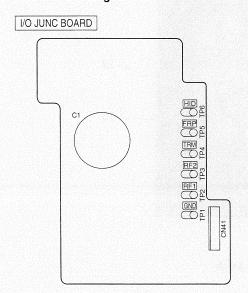


Fig. 2-3-2

2.3.3 Specifications of alignment tape

MHP: for U-ver.

(Stairstep segment of MH-1 tape is substitutable)

Video Signal	Audio Signal	Time (min.)	Applications
VHP (SP mode) stairstep	7 kHz (guard band recording)	20	A/C head azimuth adjustment.

MHPE: for E-ver.

(Stairstep segment of MH-2 tape is substitutable)

Video Signal	Audio Signal	Time (min.)	Applications
VHS (SP mode) Stairstep	6 kHz	20	For adjustment of A/C head azimuth.

MBA-3: for U-ver.

(Tape that MHA-3 is changed just in the name.)

Video Signal	Audio Signal	Time (min.)	Applications
-	1 kHz (guard band recording)	_	A/C head height adjustment

MBAE-3; for E-ver.

(Tape that MHAE-3 is changed just in the name.)

Video Signal	Audio Signal	Time (min.)	Applications
<u>-</u>	1 kHz (guard band recording)	_	For adjustment of A/C head azimuth.

MSHP

Video Signal	Audio Signal	Time (min.)	Applications
Sine wave	_	50	Interchangeability adjustment

MSHP-X

Video Signal	Audio Signal	Time (min.)	Applications
Color bar (1 track per frame does not contain video.)		50	X-value adjustment, tracking preset adjustment.

2.4 MAINTENANCE AND INSPECTION OF MAIN PARTS

Periodical inspection and maintenance are the prerequisite for ensuring the original performance and reliability of the set. Table 2-4-1 (check and maintenance table for major parts) is compiled as a standard of main parts replacement on the assumption that the set is used in ordinary conditions. Therefore, replacing periods indicated in the table greatly differ depending on actual use and environmental conditions. Moreover, if the set undergoes inspection and maintenance irregularly or is left without inspection and maintenance, it not only shortens the

replacement period considerably but also affects other parts and the whole function.

Rubber parts require careful attention because they are apt to deform or deteriorate if the set is hardly used or left in bad environment.

The life time of the drum depends on use and environmental conditions.

2.4.1 Main Parts Layout

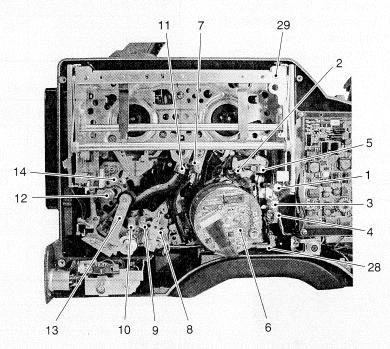


Fig. 2-4-1 Top Side of Deck

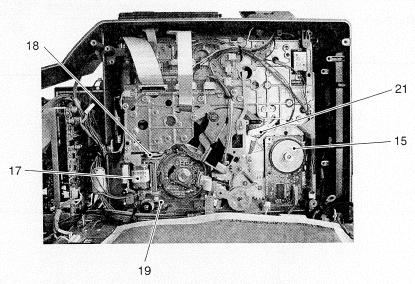


Fig. 2-4-2 Back Side of Deck

2.4.2 Check and maintenance table

Table 2-4-1 Check and maintenance table for major parts

 : Replacing

Standard service period (Operating Hours) (See Note) Reference Symbol No. of part section of Category No. Remark Part Name and page which is this appears in manual A B C 2.7.2 M 4 No. 91 1 1st quide roller M 4 No. 81 Including supply tension band 2 2.7.4 \star Supply tension arm assembly M 4 No. 108 3 2.7.3 Full erase head guide roller 4 Full erase head assembly 2.7.17 0 M 4 No. 111 Including tape scraper \star M 4 No. 74 2.7.5 5 Supply pole base assembly transport system M 3 No. 59 2.5.2 6 Drum assembly M 4 No. 68 Take-up guide roller 2.7.11 \star \bigcirc M 4 No. 102 2.7.7 8 A/C head assembly * M 4 No. 92 9 A/D head guide roller 2.7.8 \star M 4 No. 110 10 Middle guide roller 2.7.9 \star M 4 No. 70 2.7.11 11 Draw pole base assembly 12 Capstan shaft 2.4.5 \star M 4 No. 99 2.7.6 ⋆ 13 Pinch roller assembly * M 4 No. 84 Including Take-up tension band 14 2.7.10 Take-up tension arm assembly 2.7.13 M 4 No. 27 15 Capstan motor assembly 2.7.14 0 \bigcirc M 4 No. 43 Including belt 16 Reel motor assembly M 4 No. 21 17 Mode motor assembly 2.7.15 M 4 No. 21E 18 Belt 2.6.3 \star M 4 No. 25 2.7.12 19 Timing belt Drive system M 4 No. 58A 20 Supply rubber tire 2.7.18 M 4 No. 59A 21 2.7.18 Take-up rubber tire 2.6.4 M 4 No. 64 22 Idler arm assembly M 4 No. 82 Supply tension band 2.6.5 23 M 4 No. 84D 2.6.6 24 Take-up tension band M 4 No. 55 25 Sub-brake 2.6.7 26 Supply reel disk assembly 2.4.6 Oiling to the shaft. ☆ ☆ ☆ 27 Take-up reel disk assembly 2.4.6 Oiling to the shaft. M 4 No. 116 Excluded from drum assembly 2.5.3 28 Head cleaner M 5 2.6.2 29 Cassette housing assembly 30 Control cam 2.7.16 M 4 No. 9 M 4 No. 8 31 Roller 2.7.16 2.7.16 M 4 No. 14 Pinch cam arm assembly

Note: For fixing an aim to service, follow the indication of the DRUM HOUR METER appearing on the MENU switch seting screen in general.

A: every 500 hours, B: every 1000 hours, C: every 2000 hours

2.4.3 Cleaning

It is desirable to carry out periodical cleaning of the tape transport system, however, it is almost impossible to do it during actual use of the set. Therefore, clean the tape transport system, without fail whenever the set is brought in for service. For cleaning, use fine woven cotton cloth moistened with ethyl alcohol.

 If the head is dirty or dusty, playback picture may consist of a great deal of minute square blocks because of malfunction of error correction, or the set fails in playing back picture for the worst.

For cleaning the video head, turn the middle drum in the normal direction (connter clockwise) while pressing quality paper lightly onto the surface of the middle drum.

Note: -

Since the video head is weak against vertical force (applied in up-down direction), it may easily be damaged if cleaning paper is moved.

2. Dirty and dusty tape guide not only increases dirt on the video head but also damages tape.

If dust and foreign particles have collected on and around guide rollers, it may possibly cause abnormal roller rotation and may result in deterioration in picture quality as mentioned above.

2.4.4 Oiling and greasing

If oil or grease looks worn or deteriorated, wipe it off and then apply new oil or greases to the specified place.

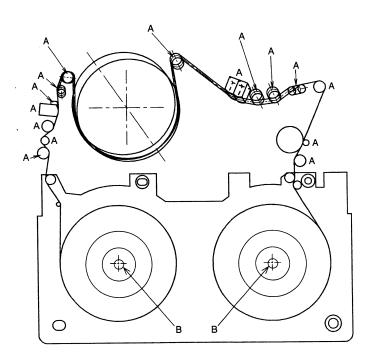
1. Table 2-4-2 shows oil and grease used in this set.

Table 2-4-2 Oil an grease used in this set

Classificcation	Name	Part No.
Oil*	Cosmo Hydro HV56	COSMO-HV56
Grease	Moriton Grease (Black)	MOS2-C

^{*}General spindle oil (low viscosity) is substitutable.

- 2. Control cam needs greasing every 2000 hours of operation.
- 3. Other parts need greasing every 2000 hours of operation or at the time of replacement.
- 4. For parts that need oiling or greasing, refer to the exploded view of SECTION 5 EXPLODED VIEWS AND PARTS LIST.



A : Cleaning

B: Oiling

Fig. 2-4-3

2.5 PERIODICAL MAINTENANCE AT EVERY 500 HOURS

2.5.1 500-hour periodical maintenance flowchart

Fig. 2-5-1 shows the procedure of the periodical maintenance operation to be performed after every 500 hours of operation.

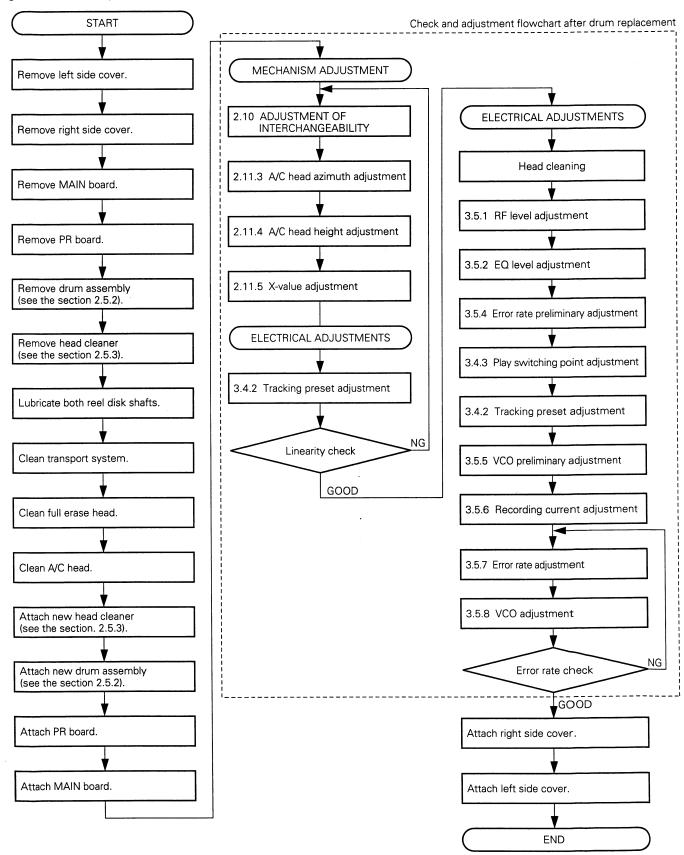


Fig. 2-5-1 500-Hour Periodical Maintenance Flowchart

Procedure	Reference Diagrams	mətl	.oN

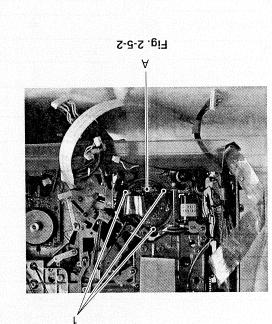
2.5.2 Drum assembly replacement

Removal

[CANTION] • When replacing the drum assembly, take enough care to avoid leaving fingerprints on the drum assembly, by wearing

• After replacing the drum assembly, be sure to perform the adjustments as shown in the flowchart (see Fig. 2-5-1). gloves, etc.

- assembly A from its front side with your hand so When removing the screws, support the drum the drum from the rear side. (see Fig. 2-5-2). 2. Remove the three screws 1 which are retaining 1. Remove the connector C. (see Fig. 2-5-3)
- upward (see Fig. 2-5-3). 3. Remove the drum assembly by gently lifting it .nwob llef ton soob ti tedt
- 5. Remove the shield plate D (see Fig. 2-5-5). 4. Remove the flat cable B (see Fig. 2-5-4).



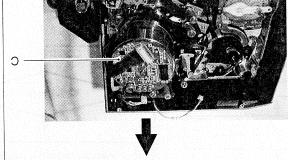


Fig. 2-5-3

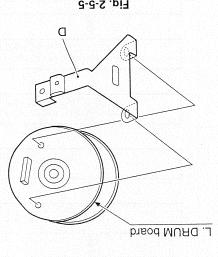


Fig. 2-5-4

Fig. 2-5-5

			2
No.	ltem	Reference Diagrams	Procedure



Marking of the	S20	S201 [MAIN : A-1E]			
drum assembly	1	2	3	4	
F	OFF	OFF	OFF	OFF	
E	OFF	OFF	OFF	ON	
D	OFF	OFF	ON	OFF	
С	OFF	OFF	ON	ON	
В	OFF	ON	OFF	OFF	
Α	OFF	ON	OFF	ON	
9	OFF	ON	ON	OFF	
0	ON	ON	ON	ON	
1	ON	ON	ON	OFF	
2	ON	ON	OFF	ON	
3	ON	ON	OFF	OFF	
4	ON	OFF	ON	ON	
5	ON	OFF	ON	OFF	
6	ON	OFF	OFF	ON	
7	ON	OFF	OFF	OFF	

- 1. Attach the drum assembly by reversing the removal procedure. The tighten torque of screw 1 should be 0.49 N-m (5 kgf-cm).
- 2. After attaching the drum assembly, set the DIP switch S201 on MAIN board to as left according to marking of the drum assembly.
- 3. Perform checks and adjustments as indicated in Fig. 2-5-1, " Check and Adjustments Flowchart After Drum Replacement".

CAUTION -

The configuration of the S201 is arranged to satisfy the requirements of the high-speed auto tracking system which has newly been added to the PR-D92/52. This new auto tracking feature enables a faster startup of the servo during playback than was possible with previous auto tracking systems.

Since the tracking pattern should now be more accurate during recording, the MAIN board should be configured to set the head angle of the S201. If the S201 is not set properly and the recorded tape is played on a VCR equipped with the high-speed auto tracking feature (PR-D92/52), the high-speed auto tracking may not function properly. DY-90 does not have high-speed auto tracking circuitry.

2.5.3 Head cleaner replacement

[CAUTION] • When replacing the head cleaner, take enough care to avoid leaving fingerprints on it.

Removal		1. Pull out the cleaner A (see Fig. 2-5-6).
	C ATTACHMENT OF THE A	
	A	
	Fig. 2-5-6	
_		1. Insert a new cleaner.

2.6 PERIODICAL MAINTENANCE AT EVERY 1000 HOURS

2.6.1 1000-hour periodical maintenance flowchart

Fig. 2-6-1 shows the procedure of the periodical maintenance operation to be performed after every 1000 hours of operation.

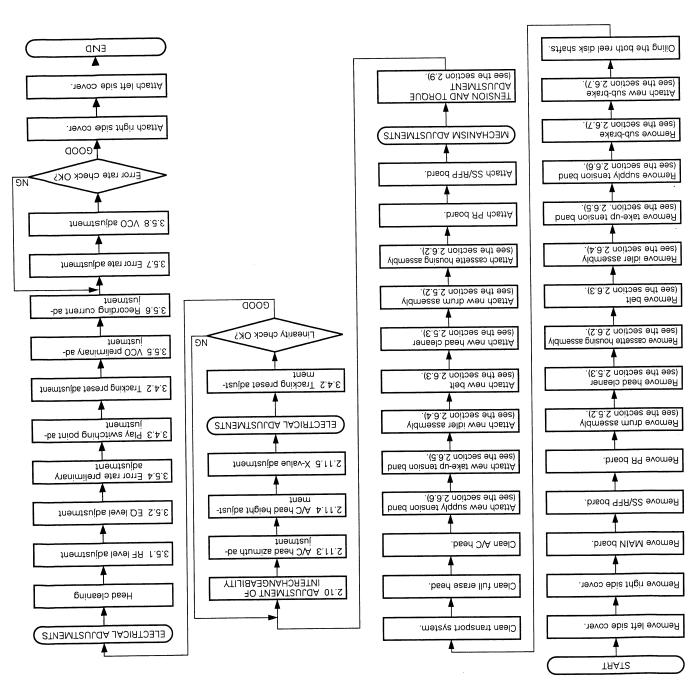
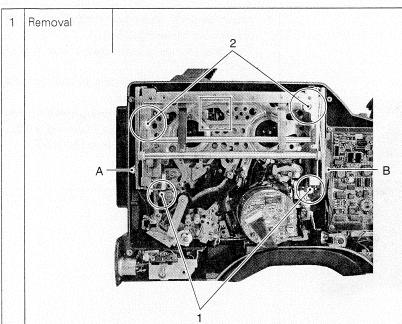


Fig. 2-6-1 1000-Hour Periodical Maintenance Flowchart

No.	Item	Reference Diagrams	Procedure

2.6.2 Cassette housing assembly replacement



1. Remove the left side cover (see the section. 1.2.2).

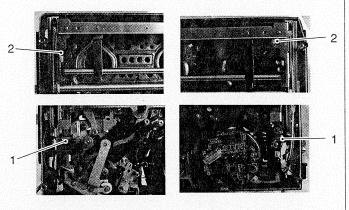


Fig. 2-6-2

2. Remove connectors A and B (see Fig. 2-6-2).

3. Remove the two screws 1 and loosen the two screws 2 (the screws 2 cannot be removed because they are held by a spring) (see Fig. 2-6-3). The right screw of screws 2 is located behind the door of the cassette housing assembly, so it should be loosened after pushing back the door.

Fig. 2-6-3 (Enlarged view of section ○ in Fig. 2-6-2)

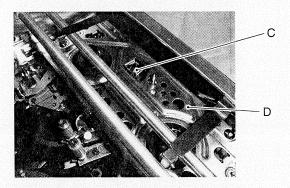
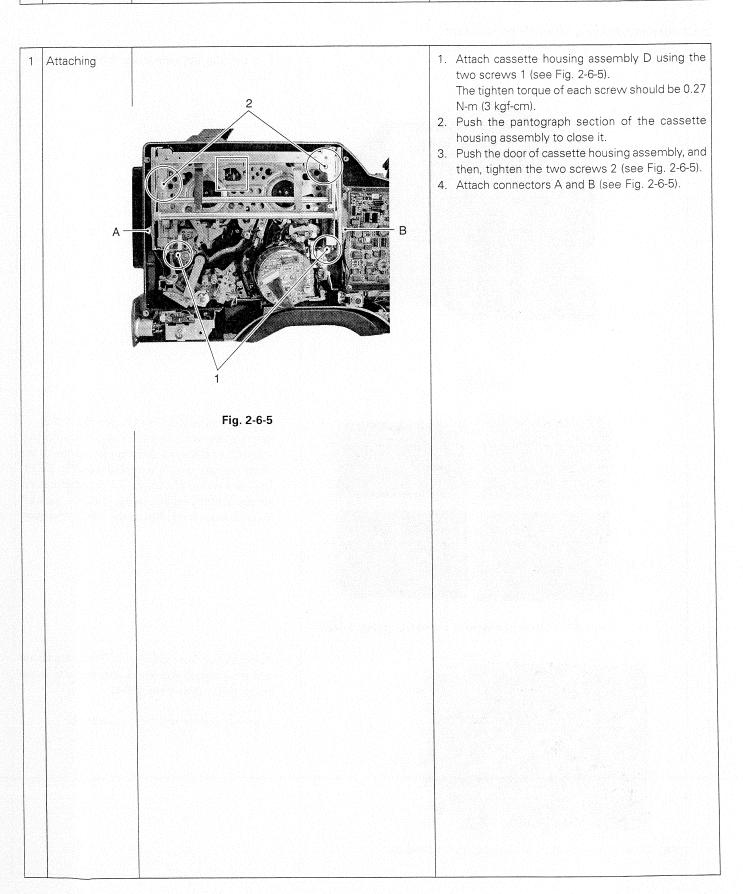


Fig. 2-6-4 (Enlarged view of section ☐ in Fig. 2-6-2)

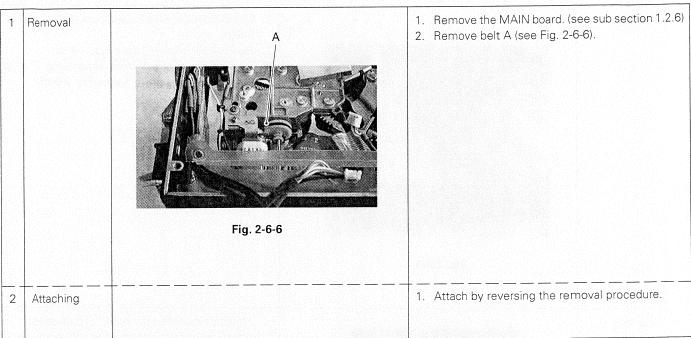
- 4. Remove claw C of the lock unit. This unlocks the cassette housing and opens the cassette housing assembly D (see Fig. 2-6-4).
- 5. Remove cassette housing assembly D.

N	0.	Item	Reference Diagrams	Procedure

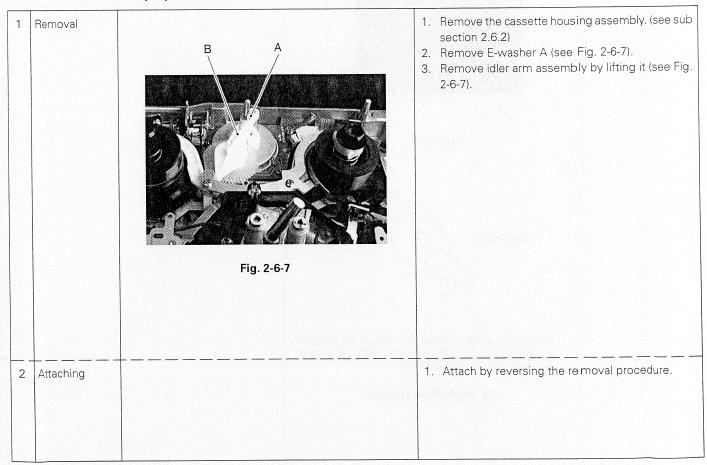


No	o. Item	Reference Diagrams	Procedure

2.6.3 Belt replacement

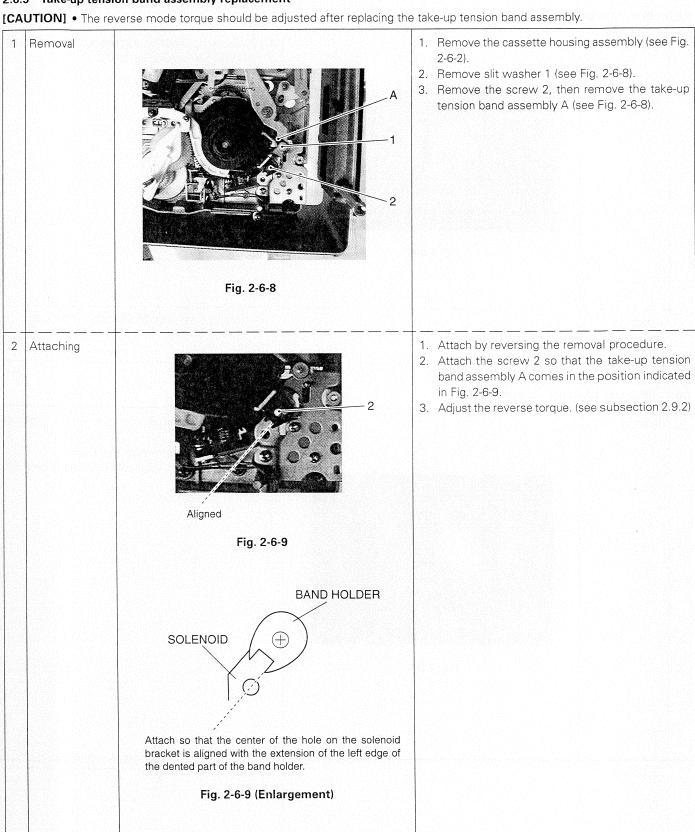


2.6.4 Idler arm assembly replacement

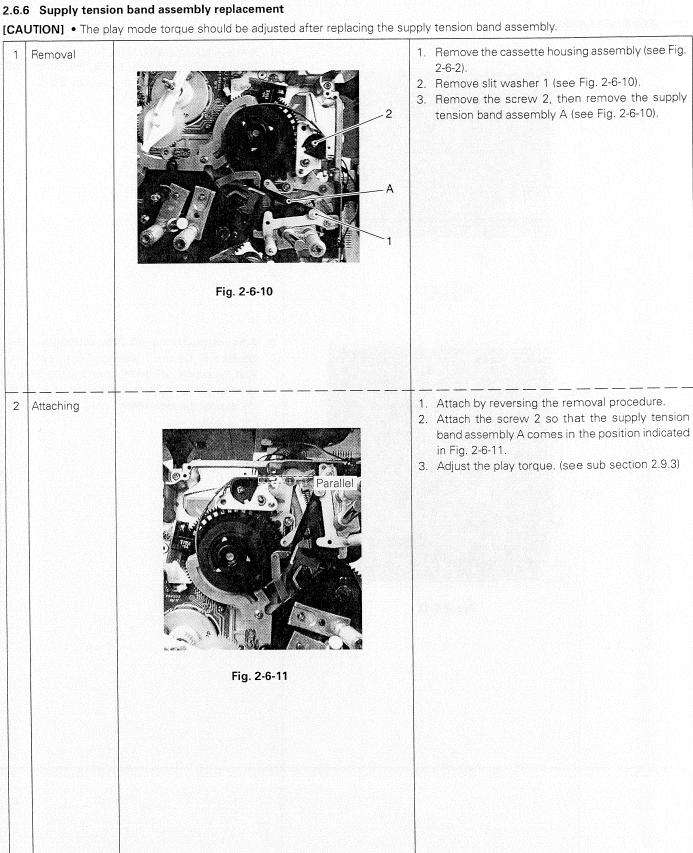


1	٧o.	Item	Reference Diagrams Procedure

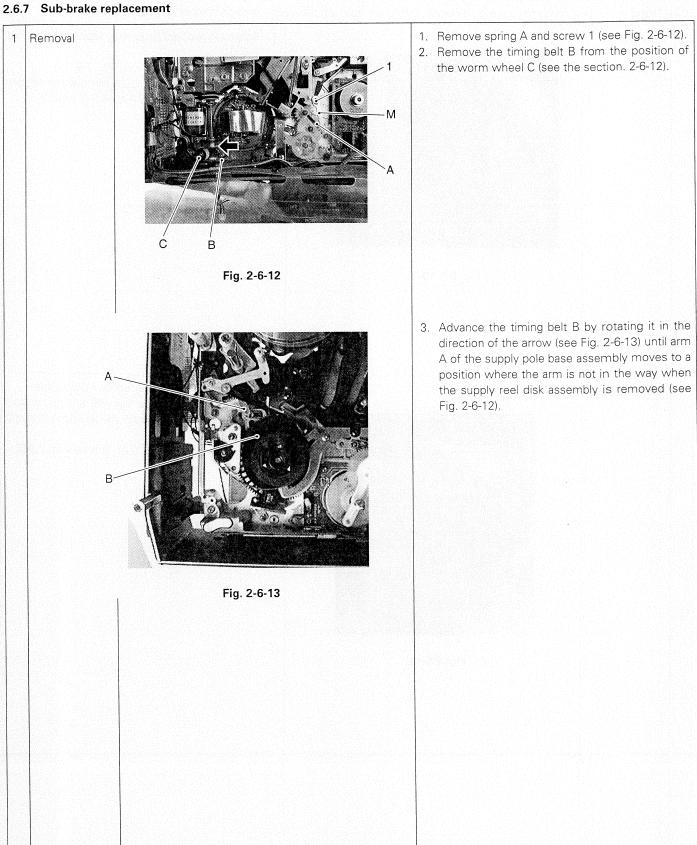
2.6.5 Take-up tension band assembly replacement



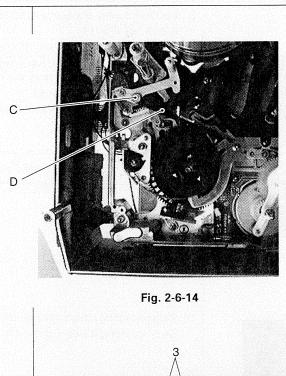
No.	Item	Reference Diagrams	Procedure



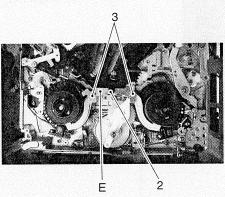
No	Item	Reference Diagrams Procedure	



N	o.	ltem	Reference Diagrams	Procedure



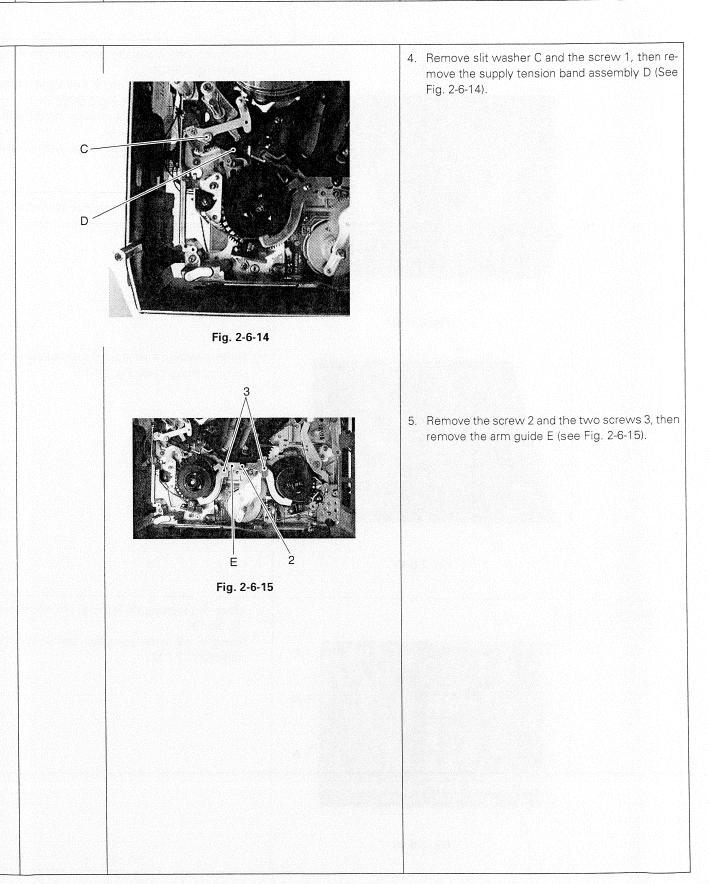
4. Remove slit washer C and the screw 1, then remove the supply tension band assembly D (See Fig. 2-6-14).



5. Remove the screw 2 and the two screws 3, then remove the arm guide E (see Fig. 2-6-15).

Fig. 2-6-15

			(1982년 - 1982년 - 1일 일본 - 1982년 - 1982년 - 1982년 - 1982
No	. Item	Reference Diagrams	Procedure



2.7 PERIODICAL MAINTENANCE AT EVERY 2000 HOURS

2.7.1 2000-hour periodical maintenance flowchart

Fig. 2-7-1 shows the procedure of the periodical maintenance operation to be performed after every 2000 hours of operation.

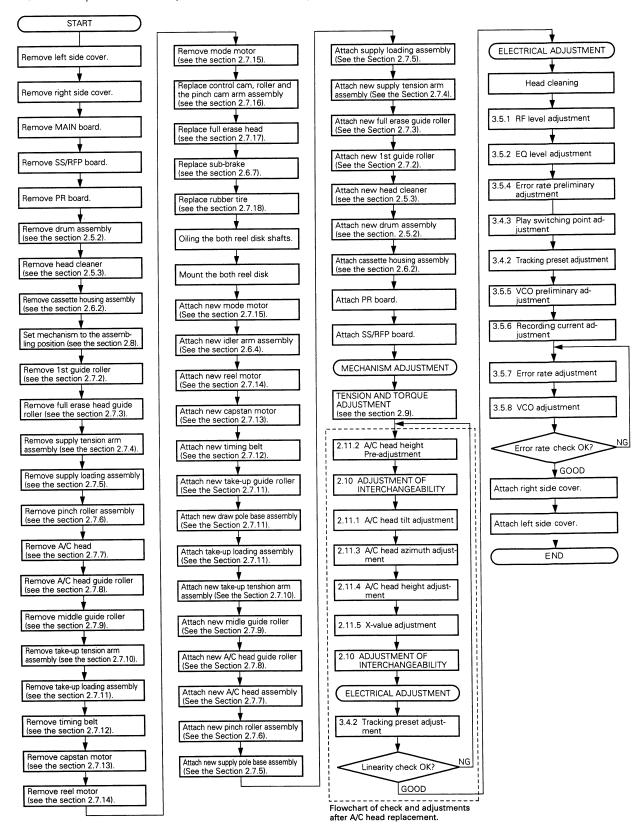


Fig. 2-7-1 2000-Hour Periodical Maintenance Flowchart

No.	ltem	Reference Diagrams	Procedure			

2.7.2 1st guide roller replacement

1	Removal	A	 Remove slit washer A (see Fig. 2-7-2). Remove 1st guide roller B (see Fig. 2-7-2).
		В	
		Fig. 2-7-2	
2	Attaching		Attach by reversing the removal procedure.

2.7.3 Full erase head guide roller replacement

[CAUTION] • Check the tape transport system after replacing the full erase head guide roller.

1	Removal	Fig. 2-7-3	 Loosen the set screw 1 (which does not have to be removed) (see Fig. 2-7-3). Remove the full erase head guide roller A by rotating it counterclockwise (see Fig. 2-7-3).
2	Attaching	Fig.2-7-4	 Attach the full erase head guide roller A by inserting and rotating it clockwise. Attach it so that rubber ring B comes in light contact with the surface (see Fig. 2-7-4). Check the tape transport system. (see subsection 2.11) Tighten the set screws 1 in order to fix the full erase head guide roller A.

No.	Item	Reference Diagrams	Procedure

- J	ion arm assembly replacement	
1 Removal	A Fig. 2-7-5	 Remove screw A (see Fig. 2-7-5). Remove the E-washer B then remove spring C (see Fig. 2-7-5). Remove the supply tension arm assembly D by pulling it upward.
2 Attaching		

N	o.	Item	Reference Diagrams Procedure	

2.7.5 Supply pole base assembly and supply loading gear replacement

[CAUTION] • Before replacement, set the mechanism to the position indicated by Section "2.8 MECHANISM ASSEMBLING POSI-

• Check the transport system after replacing the supply pole base assembly.

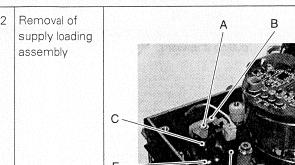
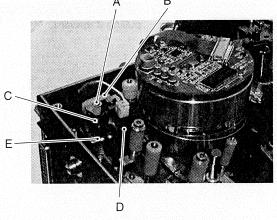


Fig. 2-7-6



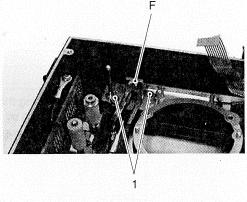
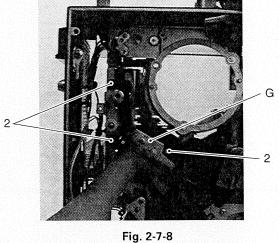


Fig. 2-7-7



- 1. Remove E-washer A, then head cleaner assembly B, spring C, full erase head assembly D and spring E (see Fig. 2-7-6).
- 2. Remove supply tension arm assembly (see the section 2.7.4).

3. Remove the two screws 1 then remove the supply catcher F (see Fig. 2-7-7).

- 4. Remove the three screws 2 while rotating the supply pole base assembly G slightly clockwise (see Fig. 2-7-8).
- 5. Remove the supply loading assembly by lifting

No.	Item	Reference Diagrams	Procedure
2	Removal of supply pole base assembly	3 Fig. 2-7-9	6. Remove the screw 3; this lets the supply pol base assembly come out (see Fig. 2-7-9).
 3	Removal of the supply loading gear	H J Fig. 2-7-10	7. Remove the spring H; this lets the supply load ing gear J come out (see Fig. 2-7-10).
4	Attaching supply loading gear	H—————————————————————————————————————	1. Fit the supply loading gear J onto the shaft ar attach spring H (attach it so that the longer hor of the spring comes on the gear side, the short hook comes on the arm side, and the opener side of each hook faces the inner side).

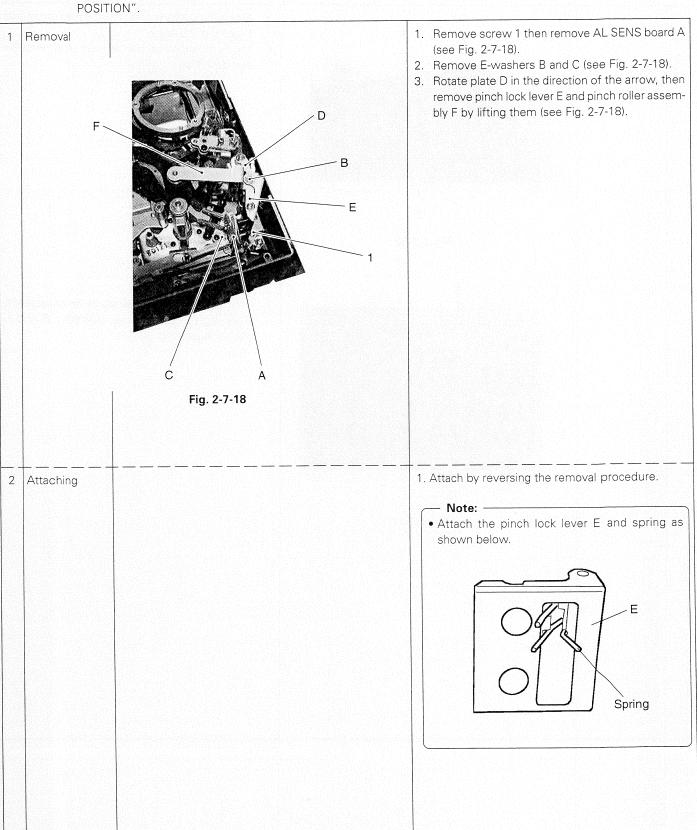
No.	Item	Reference Diagrams	Procedure
5	Attaching the supply pole base assembly	3 Fig. 2-7-12	2. Attach the supply pole base assembly G using the screws 3. The securing torque should be 0.14 N-m (1.5 kgf-cm) (see Fig. 2-7-12).
6	Attaching the supply loading assembly	K Cross	3. Attach the supply loading gear J onto the support K on the deck so that the support fits into the hole on the gear (see Fig. 2-7-13). Attach it so that the gears are meshed as shown in Fig. 2-7-14.
		Fig. 2-7-13	4. Attach the three screws 2 while rotating the supply pole base assembly G slightly clockwise (see Fig. 2-7-15).
		Fig. 2-7-14	2 E
			Fig. 2-7-15

No.	ltem	Reference Diagrams	Procedure		
		1 Fig. 2-7-16	 5. Attach the supply catcher F using the two screws 1 (see Fig. 2-7-16). 6. Attach the supply tension arm assembly (see the section 2.7.4). 		
		D Fig. 2-7-17	7. Attach the spring E, fully erase head assembly D, spring C, head cleaner assembly B and E-washer A (see Fig. 2-7-17).		
,					

No	Item	Reference Diagrams	Procedure

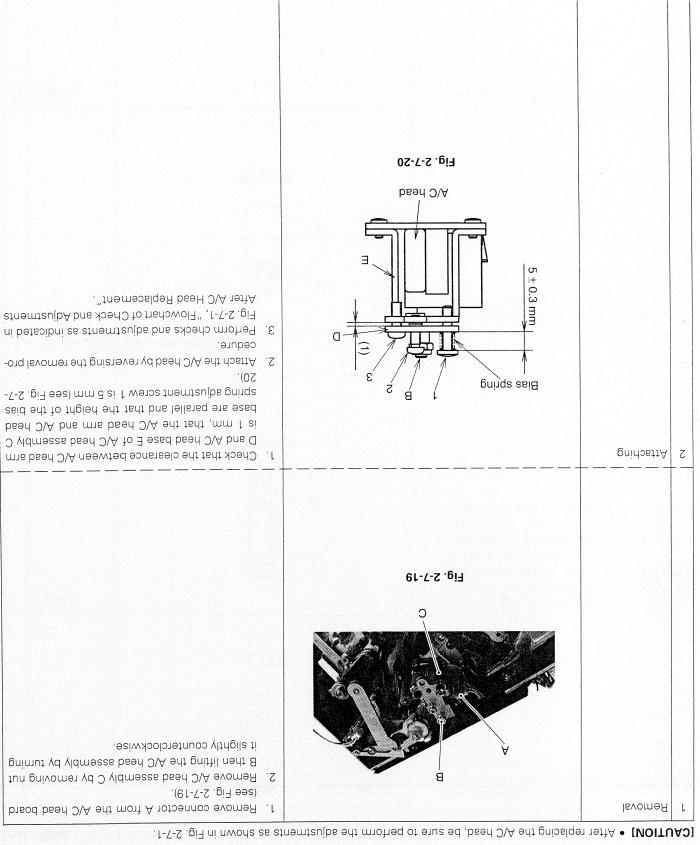
2.7.6 Pinch roller assembly

[CAUTION] • Before replacement, set the mechanism to the position indicated in subsection "2.8 MECHANISM ASSEMBLING



Procedure	Reference Diagrams	mətl	.oN

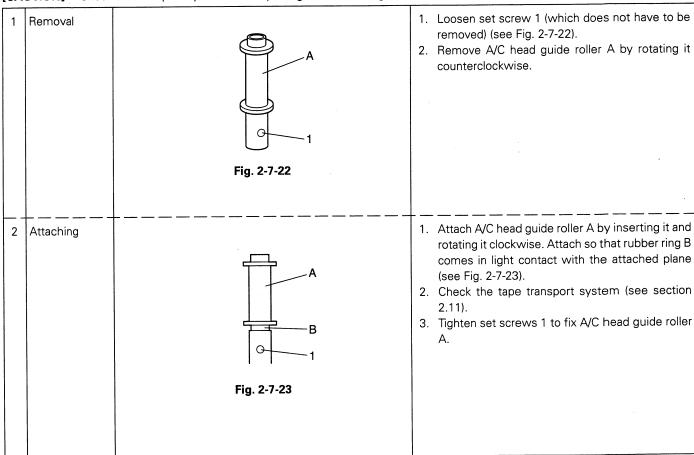
7.7.2 A/A Dead Polacement



No.	Item	Reference Diagrams	Procedure

2.7.8 A/C head guide roller replacement

[CAUTION] • Check the transport system after replacing the A/C head guide roller.



2.7.9 Middle guide roller replacement

1	Removal	A	 Remove slit washer A (see Fig. 2-7-24). Remove middle guide roller B (see Fig. 2-7-24).
		B Etc. 2.7.24	
		Fig. 2-7-24	
2	Attaching		Attach by reversing the removal procedure.

	No.	Item	Reference Diagrams	Procedure

2.7.10 Take-up tension arm assembly replacement

[CAUTION] • Check the transport system after replacing the take-up tension arm assembly.

1 Removal

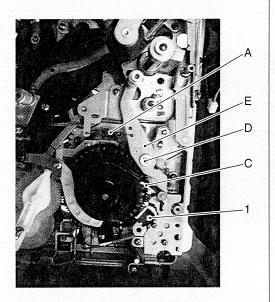


Fig. 2-7-25

- 1. Remove spring A (see Fig. 2-7-25).
- 2. Remove screw 1 (see Fig. 2-7-25).
- 3. Remove E-ring D; this lets the take-up tension arm assembly E come out.

2 Attaching

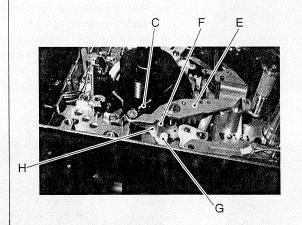


Fig. 2-7-26

- 1. Attach take-up tension arm assembly E so that lever F of the take-up tension arm assembly enters between the two levers G and H as shown in Fig. 2-7-26.
- 2. Attach E-ring D (see Fig. 2-7-25).
- 3. Attach take-up tension band C using screw 1 (see subsection 2.6.5)
- 4. Attach spring A (see Fig. 2-7-25).
- 5. Adjust the reverse torque. (see subsection 2.9.2)

2.7.11 Take-up guide roller, draw pole base assembly and take-up loading assembly replacement

[CAUTION] • Before replacement, set the mechanism to the position indicated by subsection "2.8 MECHANISM ASSEMBLING POSITION".

• Check the transport system after replacing each assembly.

Removal of take-up loading assembly

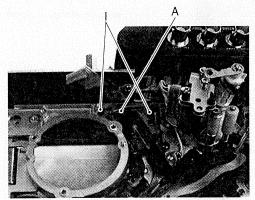
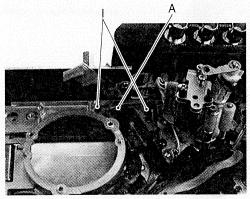
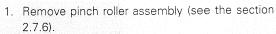


Fig. 2-7-27





- 2. Remove supply loading assembly (see the section 2.7.5).
- 3. Remove the three screws 1 then remove takeup catcher A (see Fig. 2-7-27).

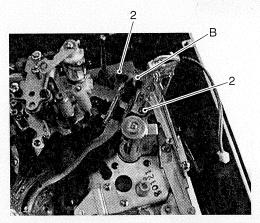


Fig. 2-7-28

- 4. Remove the two screws 2 then remove draw catcher B (see Fig. 2-7-28).
- 5. Remove spring D from take-up tension arm assembly (see Fig. 2-7-29).
- 6. Remove the six screws 3 (see Fig. 2-7-30).
- 7. Remove the two screws 4 which retain draw loading arm assembly; this lets the take-up loading assembly F come out (see Fig. 2-7-30).

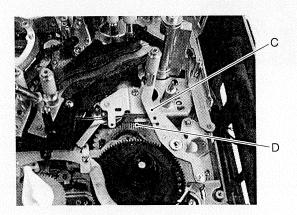


Fig. 2-7-29

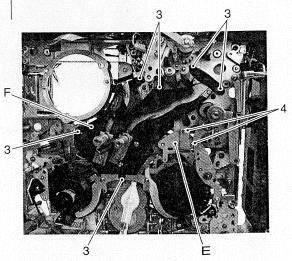


Fig. 2-7-30

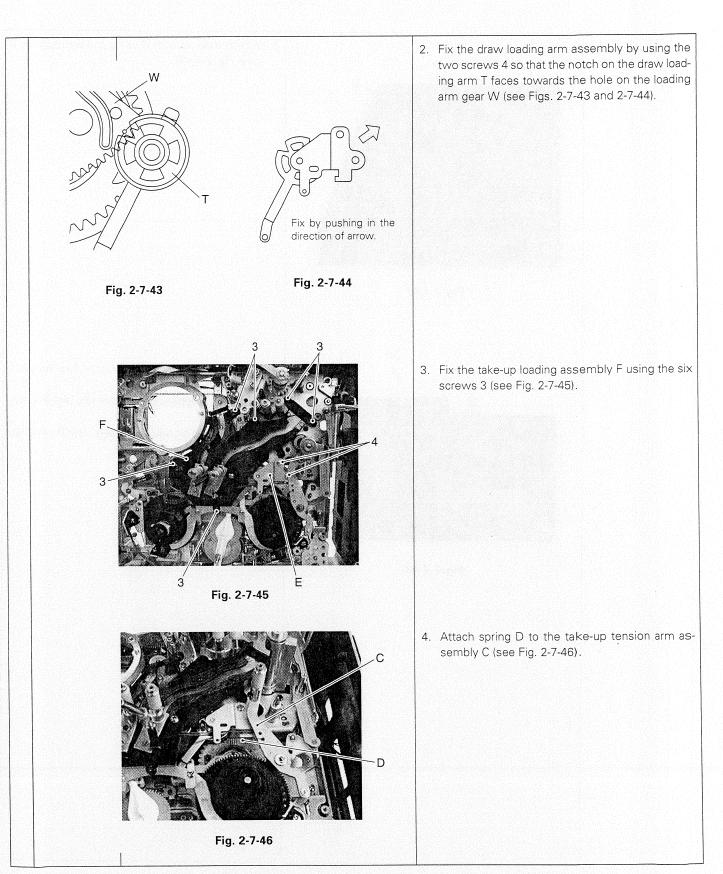
No.	Item	Reference Diagrams	Procedure
56 15 of all	Removal of take-up guide roller	G H Fig. 2-7-31	Loosen screw G and remove the take-up guide roller H by rotating it counterclockwise (see Fig 2-7-31).
3	Removal of draw pole base assembly	₩ K	2. Remove E-washer J then remove draw pole base assembly K by sliding it in the direction of the arrow (see Fig. 2-7-32). 2. Remove E-washer J then remove draw pole base assembly K by sliding it in the direction of the arrow (see Fig. 2-7-32).
 4	Removal of	Fig. 2-7-32	3. Remove springs L and M; this lets the take-u
	take-up loading gear		loading gear N come out (see Fig. 2-7-33).
		Fig. 2-7-33	117.5.38

No.	ltem	Reference Diagrams	Procedure
5	Removal of draw loading gear	P Q R R	 4. Remove spring P (see Fig. 2-7-34). 5. Remove slit washer Ω; this makes it possible to remove draw loading gear R.
6	Attaching draw loading gear	Q R Fig. 2-7-35	1. Fit draw loading gear R onto the shaft and retain it by using the slit washer Q (see Fig. 2-7-35).
	(a) Top view	Sheet metal Remove clearance between the spring and the sheet metal by twisting the spring in the direction of the arrow. (b) Side view Fig. 2-7-36	2. Attach spring P (so that the longer hook of the spring comes on the gear side, the shorter hook comes on the arm side, and the opened side of each hook faces the inner side) (see Fig. 2-7-36).

Vo.	ltem	Reference Diagrams		Procedure
7	Attaching take-up loading gear	N N N N N N N N N N N N N N N N N N N	1.	Fit take-up loading gear N onto the shaft (see Fig 2-7-37).
	(a)	Fig. 2-7-37 M Top view (b) Side view Fig. 2-7-38	2.	Attach springs L and M (so that the longer hoo of each spring comes on the gear side, the shorte hook comes on the arm side, and the opene side of each hook faces the inner side) (see Fig 2-7-38).
8	Attaching draw pole base assembly	S T K	1.	Position the draw pole base assembly K on the take-up guide rail S, thread the shaft of the draw loading arm assembly T through from the bottom side, and secure it by using the E-washer (see Fig. 2-5-39).
		Fig. 2-7-39		

No. Item	Reference Diagrams	Procedure
9 Attaching the take-up guide roller	G H Fig. 2-7-40-A	2. Attach take-up guide roller H by inserting it and rotating it clockwise. Attach so that rubber ring U comes in light contact with the attached plane (see Fig. 2-7-40-B). H G Fig. 2-7-40-B
10 Attaching the take-up loading assembly	Fig. 2-7-42	1. Attach the take-up loading gear N onto the support V on the deck so that the support fits into the hole in the gear (see Fig. 2-7-41). Attach so that the gears are meshed as shown in Fig. 2-7-42.

No.	Item	Reference Diagrams	Procedure
1			
<u> </u>			



No.	Item	Reference Diagrams	Procedure
			가장 하게 하다가 보고 있었다. 이 그리는 사람들이 모든 것이 되는 것이 되었다. 그 것이 없었다. 15일 중요 - 15일 사람들은 이 글로그를 하는 것이 들었다. 15일 등로 보는 것이 되었다.

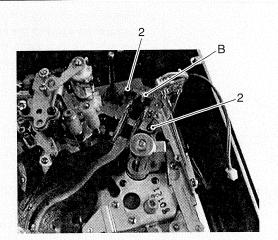


Fig. 2-7-47

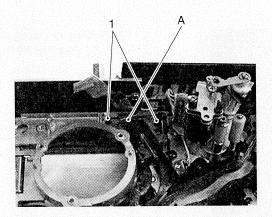


Fig. 2-7-48

5. Attach draw catcher B using the two screws 2 (see Fig. 2-7-47).

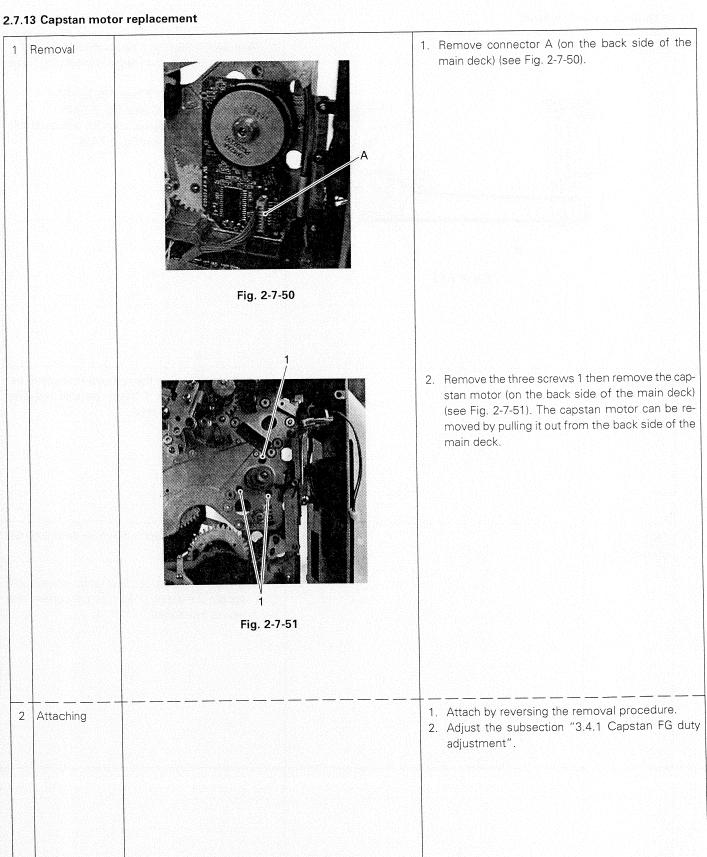
- 6. Attach take-up catcher A using the two screws 1 (see Fig. 2-7-48).
- 7. Attach the supply loading assembly (see the section 2.7.5).
- 8. Attach the pinch roller assembly (see the section 2.7.6).

Procedure

2.7.12 Timing belt replacement

bənistnism zi noiz.			
B) Check that timing belt B is under tension, and tighten the screw 1 so that the current ten-			
lwo. A gring A.		tnəmtsujbs	
Adjust the timing belt tension as described be-		_ — — — — —	3 -
1. Attach by reversing the removal procedure, except that the screw 1 should be attached after having attached spring A.		gnidəsttA	7
1. Remove the PR board. (see subsection 1.6.4) 2. Remove spring A, then remove the screw 1 (see Fig. 2-7-49). 3. Remove timing belt B (see Fig. 2-7-49). 4. Remove belt B together with BR arm assembly B move belt B together with BR arm assembly D and belt gear E (see Fig. 2-7-49).	Fig. 2-7-49	Removal	·
(N.A. L. moitheadus eas), brend 89 adt eviorne8 . L.		is serviced learning serviced	

Γ				
	No.	Item	Reference Diagrams	Procedure



No.	Item	Reference Diagrams Procedure

2.7.14 Reel motor replacement

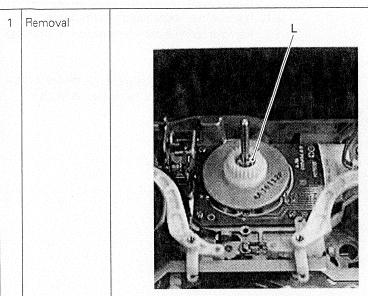


Fig. 2-7-52

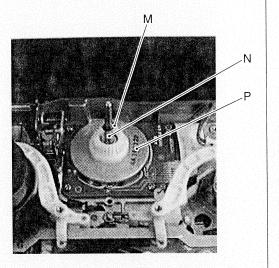


Fig. 2-7-53

- 1. Remove the supply reel disk (see items 1 to 9 of the subsection "2.6.7 Sub-brake replacement").
- 2. Remove the idler arm assembly (see sub section 2.6.4).
- 3. Remove E-washer L (see Fig. 2-7-52).
- 4. Remove washer M and spring N, then remove rotor P (see Fig. 2-7-53).

- CAUTION -

- Be careful when removing the rotor because it is strongly magnetized.
- 4. Remove the four screws 4, then remove the board of the reel motor (the flat wire is fixed by using double-sided adhesive tape) (see Fig. 2-7-54).

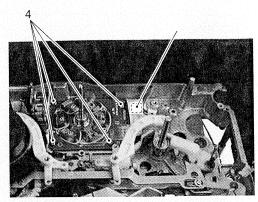


Fig. 2-7-54

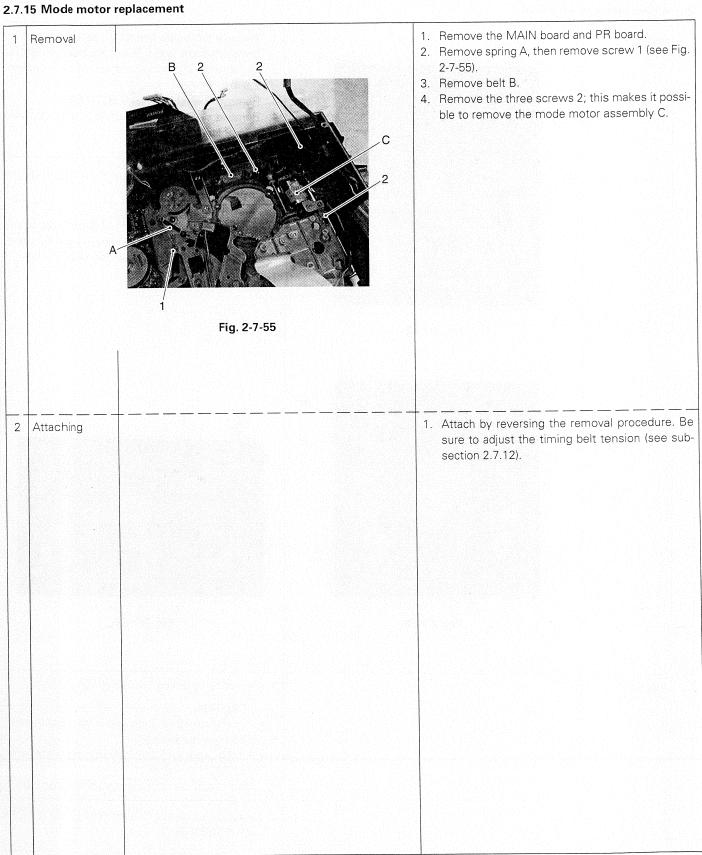
2	Attaching
2	Attaching
	_

1. Attach by reversing the removal procedure.

- CAUTION -

- Be careful when attaching the rotor because it is strongly magnetized.
- Put the name card or et cetra on the stater and then attach the rotor.
 - After attach the rotor, remove the name card.
- 2. Adjust the subsection "2.9 TENSION AND TORQUE ADJUSTMENTS".

1	No. Item	Reference Diagrams	Procedure



ſ				
	No.	Item	Reference Diagrams	Procedure

2.7.16 Control cam, roller and pinch cam arm assembly replacement

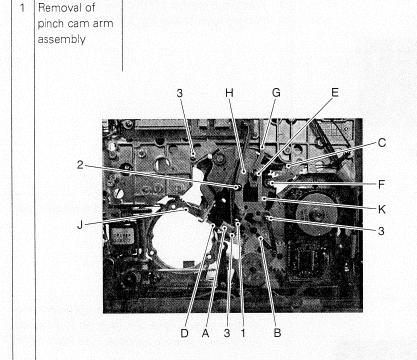


Fig. 2-7-56

- 1. Remove supply loading assembly (see subsection 2.7.5).
- 2. Remove take-up loading assembly (see subsection 2.7.11).
- 3. Remove connector A (see Fig. 2-7-56).
- 4. Remove springs B and C (see Fig. 2-7-56).
- 5. Remove screw 1, then remove MODE SENS board D (see Fig. 2-7-56).
- 6. Remove E-washers E and F (see Fig. 2-7-56).
- 7. Remove screw 2 and three screws 3 (see Fig. 2-7-56).
- 8. While lifting eject rod G, remove cam bracket assembly H and arm gear (L) assembly J (see Fig. 2-7-56).
- 9. Pinch cam arm assembly K is also removed at the same time as the above.



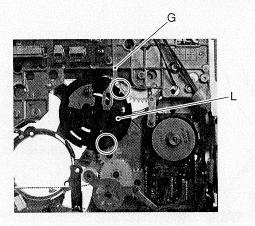


Fig. 2-7-57

10. While lifting the eject rod G, remove the control cam L (see Fig. 2-7-57).

No.	ltem	Reference Diagrams	Procedure
3	Removal of roller	Fig. 2-7-58	Remove E-washer M; this makes it possible to remove roller N (see Fig. 2-7-58).
– – 4	Attaching roller	Fig. 2-7-50	Attach the roller N by reversing the removal procedure.
5	Attaching the control cam	Fig. 2-7-59	2. Place arm gear (R) P in the assembling position (so that the hole Q of arm gear (R) P is aligned with the hole on the main deck) (see Fig. 2-7-59).
		Align. Align.	3. Attach the control cam L in the assembling position (by aligning the small D marking on the cam idler gear S with the D marking on the control cam L) (see Fig. 2-7-60). Also insert stud R of the arm gear (R) into the groove on the control cam.

No.	Item	Reference Diagrams	Procedure
6	Attaching pinch cam arm assembly	T G H	4. Place cam bracket assembly H and arm gear (L assembly J in the assembling positions (see Fig 2-7-61). (Hole T on cam bracket J should be aligned with the hole on arm gear (L) assembly H.)
		Fig. 2-7-61	5. Attach pinch cam arm K (see Fig. 2-7-62).
		Fig. 2-7-62	6. Tighten two screws 3 and 2 (see Fig. 2-7-63).
		Fig. 2-7-63	

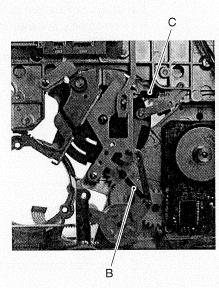


Fig. 2-7-64

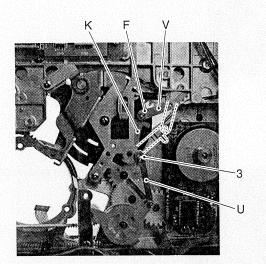


Fig. 2-7-65

7. Attach springs B and C (see Fig. 2-7-64).

- 8. Secure the adjust lever assembly U using the screw 3 (see Fig. 2-7-65).
- 9. Attach S-plate assembly V and pinch cam arm assembly K using E-washer F.

- CAUTION -

- The pinch cam arm assembly must be attached as shown in the diagram. If it is attached as shown by the dotted lines in Fig. 2-7-65, it will be impossible to crimp the pinch roller.
- 10. Attach eject rod G using E-washer E (see Fig. 2-7-66).
- 11. Attach MODE SENS board D using the screw 1 (see Fig. 2-7-66).
- 12. Attach the connector A (see Fig. 2-7-66).
- 13. Attach the take-up loading assembly (seesub section 2.7.11).
- 14. Attach the supply loading assembly (see subsection 2.7.5)

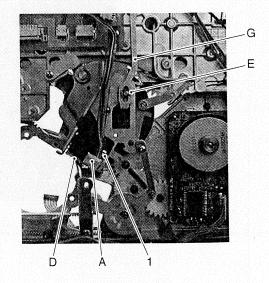
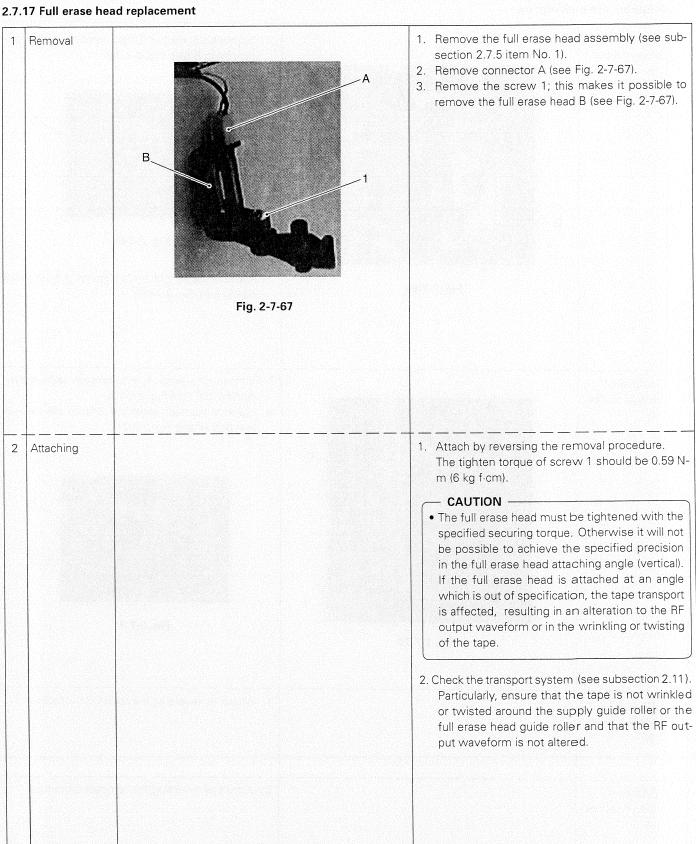
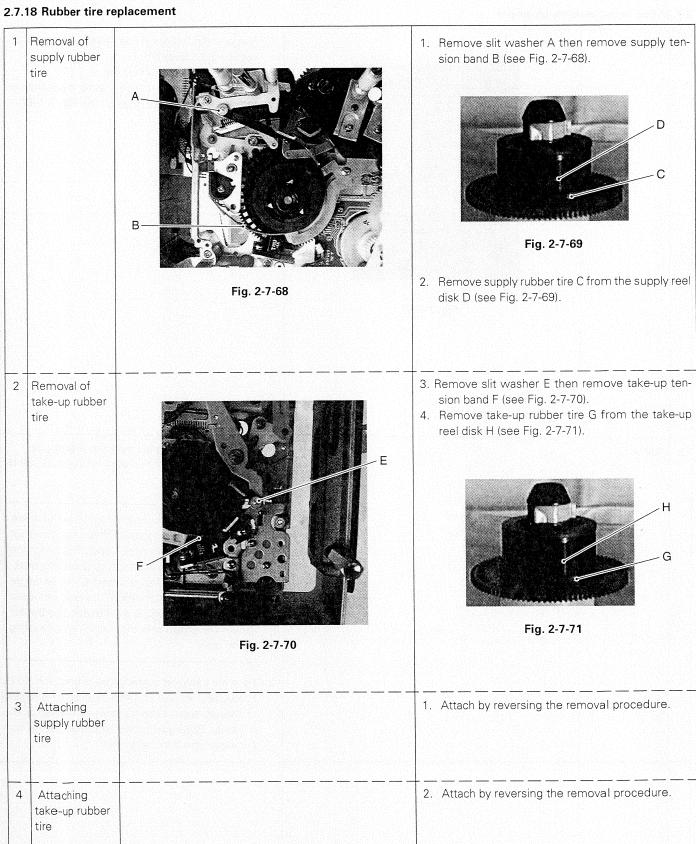


Fig. 2-7-66

No.	Item	Reference Diagrams	Procedure



No.	Item	Reference Diagrams	Procedure



2.8 MECHANISM ASSEMBLING POSITION

Some mechanical parts of this unit do not function correctly unless they are attached with the specified positioning after replacement. The position of the mechanism that makes possible the attachment or checks of the positioning of these parts is referred to as the assembling position. The unit has been designed so that the markings on the gears are aligned correctly when the mechanism is in this position. The methods for placing the mechanism in the assembling position include "placing gears by turning them manually as shown in Fig. 2.8.1", and so on. This section describes the attaching positions of the gears when the mechanism is in the assembling position.

2.8.1 Pinch idle gear, connect gear, cam idle gear

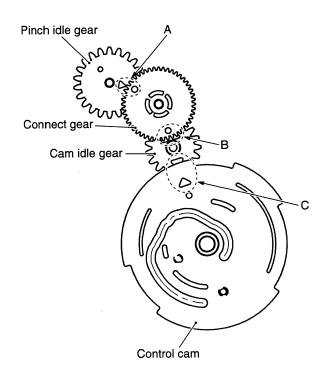


Fig. 2-8-1 Gear Positioning 1 (Bottom Panel Side)

- A : Align the △ marking on the pinch idle gear and o marking on the connect gear.
- B: Align the larger \triangle marking on the cam idle gear with the \circ marking on the connect gear.
- C: Align the smaller \triangle marking on the cam idle gear with the \triangle marking on the control cam.

2.8.2 Arm gear (L), loading arms (L) (R), Geneva gear

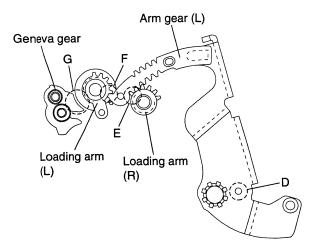
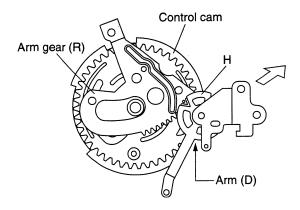


Fig. 2-8-2 Gear Positioning 2 (Perspective View from Above)

- D: The hole on the arm gear (L) should be aligned with the hole on the part below it when viewed from below.
- E: Align the gear end of the loading arm (R) with the end of the groove on the arm gear (L).
- F: Engage the gear end of the loading arm (L) with the end of the arm gear (L) as shown in the diagram.
- G: Align the R section of the Geneva gear with the loading arm (L).

2.8.3 Arm gear (R), arm (D)



H: Align the hole on the arm gear (R) with the notch on the arm (D). The bracket of the arm (D) should be pushed in the direction of the arrow before securing the screw.

Fig. 2-8-3 Gear Positioning 3 (Perspective View from Above)

2.8.4 Second cam, direction plate

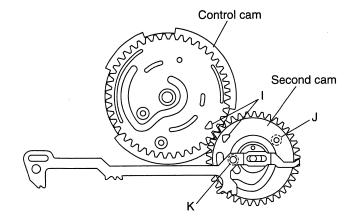


Fig. 2-8-4 Gear Positioning 4 (Perspective View from Above)

- I : Align the \triangle markings on the control cam and second cam.
- J: The holes on the second cam and the main deck should be aligned.
- K: Insert the stud of the direction plate into the groove on the inner side of the second gear.

2.8.5 Pinch roller assembly, cam bracket

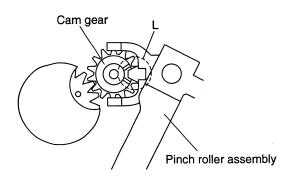


Fig. 2-8-5 Gear Positioning 5 (Top Side View)

L : Orient the notch on the cam gear toward the right.

Insert the stud of the pinch roller assembly into the notch on the cam gear.

No. Item Measuring Measuring Adjustment & Mode Adjustment Adjustme	arts (①) Adjustment procedure
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2.9 TENSION AND TORQUE ADJUSTMENTS

The rotation torque of the reel motor can be adjusted in the DIAG mode by using the Group 7 adjustment menus. To protect the cassette torque meter, the tape is transported by the capstan motor drive during the torque adjustment operations, even when the FF/REW button is pressed.

1	Unloading torque adjustment	Cassette torque meter PUJ42881B	DIAG mode "&i :"	© Cassette torque meter: Supply side, indicated value ① "OPERATE" + "FF": Torque Up "OPERATE" + "REW" : Torque Down ☆ 0.015 N·m (150 gf·cm ± 20 gf·cm)	 Execute DIAG mode "El:" (see the section 1.9). Install the cassette torque meter. Press the REW button. (Rotates the supply reel at the unloading torque.) While holding the OPERATE button depressed, press the FF or REW button to adjust the supply torque within the specified range. Press the DATA SET button. The adjusted data is stored in the memory and "El: Ed: DI xx" is displayed (where "xx" shows the adjusted data).
1	Reverse torque adjustment ake-up ension arm	Cassette torque meter PUJ42881B	DIAG mode "5F:"	© Cassette torque meter: Supply side, indicated value ① "OPERATE" + "FF": Torque Up "OPERATE" + "REW" : Torque Down ☆ 0.01 N·m (110 gf·cm ± 20 g-cm)	 Execute DIAG mode "5F:" (see the section 1.9). Install the cassette torque meter. Press the REW button. (Initiates the search reverse x 1 mode.) While holding the OPERATE button depressed, press the FF or REW button to adjust the supply torque within the specified range. Press the DATA SET button. The adjusted data is stored in the memory and "5F:Ed: T xx' is displayed (where "xx" shows the adjusted data).
				 © Cassette torque meter: Take-up side, indicated value ⊕ Retaining screw of the take-up tension band ☆ 0.0035 N·m (36 ± 5 gf·cm) Take-up tension band holder	 Check that the take-up reel disk torque of the cassette torque motor is at the adjustment level. If the value is not within the adjustment lever range, remove the cassette torque meter and adjust the installation angle of the take-up tension band (see Fig. 2-9-1). Install the cassette torque meter again and press the REW button. Repeat steps 6 to 8 above to adjust within the correct adjustment range. Press the RESET button to terminate the adjustment.
		down 0	o O	Screw	

No.	ltem	Measuring instrument & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	
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3	Play torque adjustment	Cassette torque meter PUJ42881	DIAG mode "&∂:"	© Cassette torque meter: Take-up side, indicated value ① "OPERATE" + "FF": Torque Up "OPERATE" + "REW": Torque Down ☆ 0.01 N·m (100 gf·cm ± 20 gf·cm)	 Execute DIAG mode "52:" (see the section 1.9). Install the cassette torque meter. Press the PLAY button. (Rotates the take-up reel at the forward transport torque.) While holding the OPERATE button de pressed, press the FF or REW button to ad just the take-up torque within the specified range. Press the DATA SET button. The adjusted data is stored in the memory and "52:Fd.00 xx is displayed (where "xx" shows the adjusted data).
				 © Cassette torque meter: supply side, indicated value ⊕ Retaining screw of the supply tension band ☆ 0.0036 N·m (37 ±5 gf·cm) 	 Check that the supply reel disk torque of the cassette torque meter is at the adjustment level. If the value is not within the adjustment lever range, remove the cassette torque meter an adjust the installation angle of the supply tersion band (see Fig. 2-9-2). Install the cassette torque meter again an
		Sup	ply tension arm		press the PLAY button. 9. Repeat steps 6 to 8 above to adjust within the correct adjustment range. 10. Press the RESET button to terminate the adjustment.
		oly tension holder	down		•
	Sc	rew Fig. 2	2-9-2		

2.10 ADJUSTMENT OF INTERCHANGEABILITY

- [CAUTION] -

• Proceed to the following adjustment after having completed subsection "3.5 SERVO SYSTEM ADJUSTMENT" and subsection "2.9 REEL SERVO CIRCUIT ADJUSTMENT".

2.10.1 Interchange ability adjustment flowchart

Fig. 2-10-1 shows the flowchart of the interchangeability adjustment.

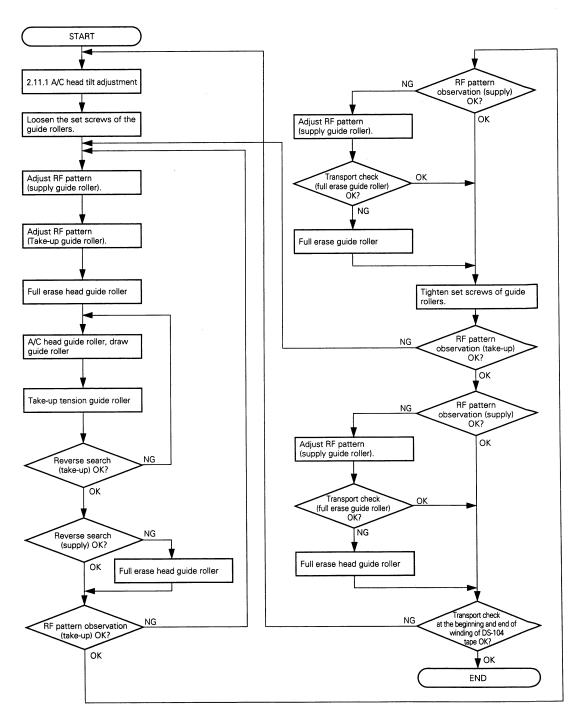
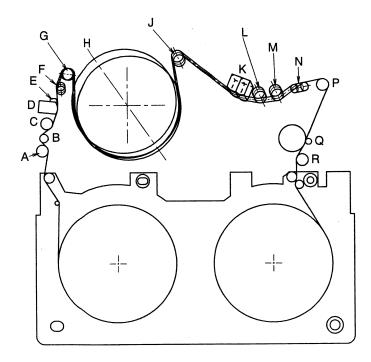


Fig. 2-10-1 Compatibility Adjustment Flowchart

2.10.2 Check of tape transport system

Each guide roller has flanges above and below it in order to limit the tape transport. Tape limiting by means of the upper flange is referred to as upper edge limitation and that achieved by means of the lower flange is referred to as lower edge limitation. The tape is usually stabilized during transport by alternately applying upper and lower edge limitations. As a lack of limitation makes the tape transport unstable, please apply limitations as shown in the following table.



Symbol	Name	Limitation
Α	1st guide roller	Non-limit
В	Supply tension pole	Non-limit
С	Full erase head guide roller	Tape's lower edge limit
D	Full erase head	Non-limit
Е	Tape scraper	Non-limit
F	Supply slant pole	Non-limit
G	Supply guide roller	Tape's upper edge limit
H	Drum assembly	Tape's lower edge limit
J	Take-up guide roller	Tape's upper edge limit
K	A/C head assembly	Non-limit
L	A/C head guide roller	Tape's lower edge limit
М	Middle guide roller	Non-limit
N	Take-up slant pole	Non-limit
Р	Draw guide roller	Tape's upper edge limit
Q	Capstan	Non-limit
R	Take-up tension roller	Non-limit

Fig. 2-10-2

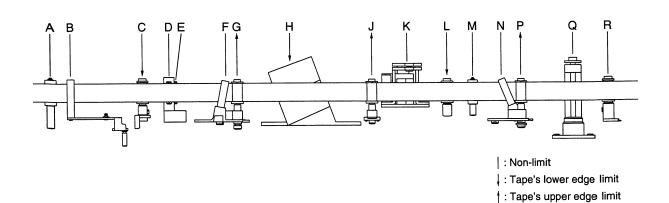
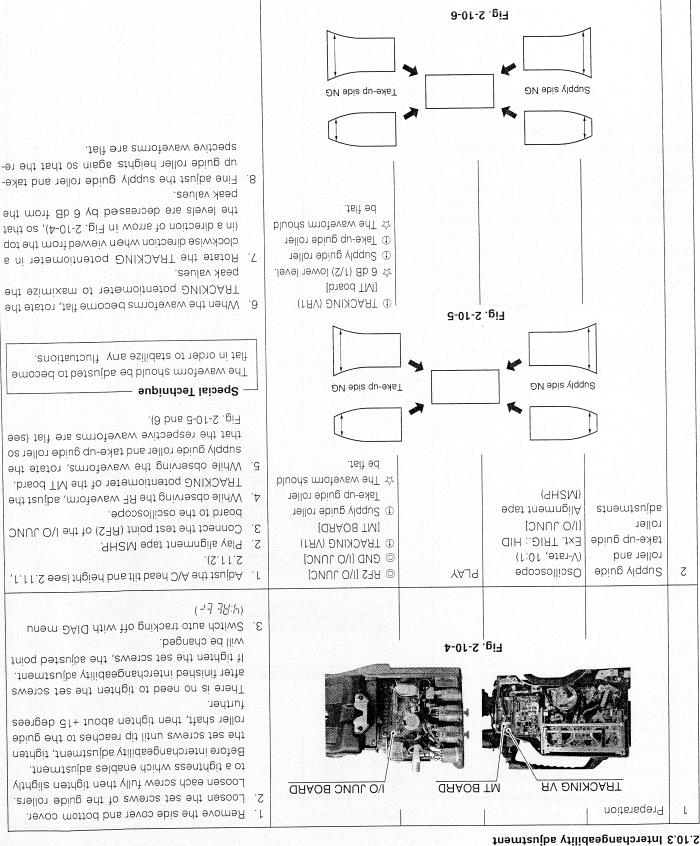
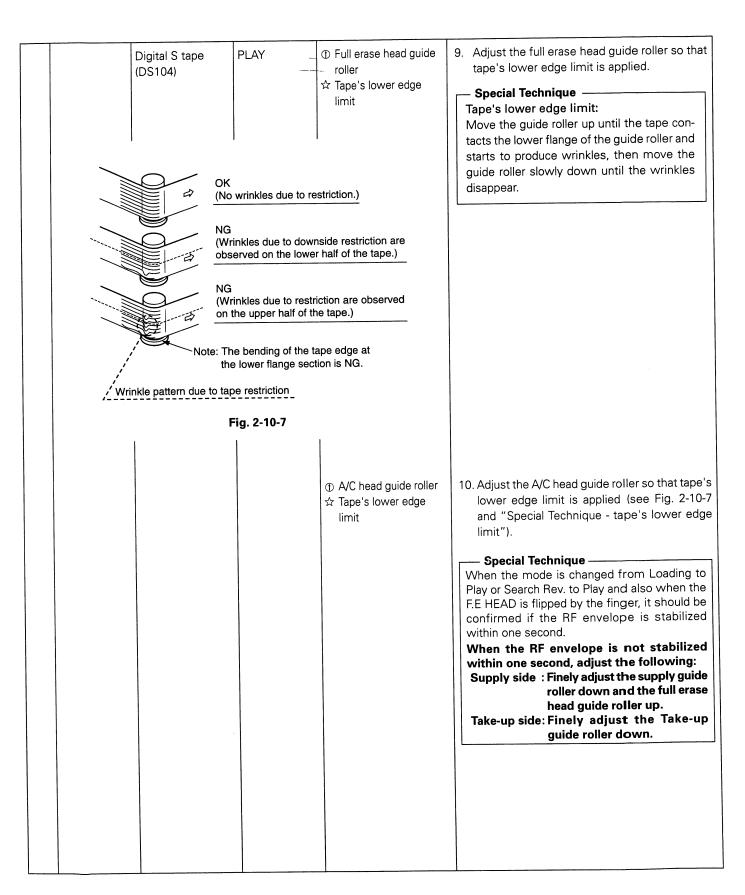


Fig. 2-10-3 View from Cassette Tape Insertion Side

Aubesong tnemtsujbA	(⊚) finion general bA (⊕) barts (⊕) (☆) level freemeral bA	əpoM	Measuring A framunteni Signels Input signals	mətl	.oN
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No.	ltem	Measuring instrument & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure



ltem	Measuring instrument & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
9 5 5 5 5 5 5 5 5 5		restriction are half of the tape.) tion is observed tape.)	11. Adjust the draw guide roller so that tape's upper edge regulation is applied. Special Technique Tape's upper edge regulation: Move the guide roller down until the tape contacts the upper flange of the guide roller and starts to produce wrinkles, then move the guide roller slowly up until the wrinkles disappears	
	Fig. 2-10-8		⊕ A/C head guide roller☆ Downside restriction.	12. Check that tape's lower edge regulation is ap plied to the A/C head guide roller. If there is no tape's lower edge regulation, adjust the A/C head guide roller height (step 10) their repeat steps 11 and 12.
Take-up tension roller adjustment	Digital S tape (DS104)	PLAY	 Take-up tension roller Take-up tension roller No wrinkles 	13. Adjust the take-up tension roller so that the tape is located between its upper and lowe flanges and no wrinkles are observed on the tape.
	Draw guide roller adjustment Wrink Take-up tension roller	Draw guide roller adjustment Wrinkle pattern due to tape Take-up tension roller (DS104) Take-up tension roller (DS104) Instrument & Input signals Digital S tape (DS104) OK (No w (No w) NG (Wrinkle pattern due to tape (DS104)	Draw guide roller adjustment OK (No wrinkles due to rest on the lower half of the upper flange section) Wrinkle pattern due to tape restriction Fig. 2-10-8 Take-up tension roller (DS104) Digital S tape (No wrinkles due to restrict on the lower half of the upper flange section (DS104)	Item Instrument & Input signals Mode Adjustment parts (⊕) Adjustment level (☆)

OK (No wrinkles due to restriction.)

Wrinkle pattern due to tape restriction

Fig. 2-10-9

(Wrinkles due to downside restriction are observed on the lower half of the tape.)

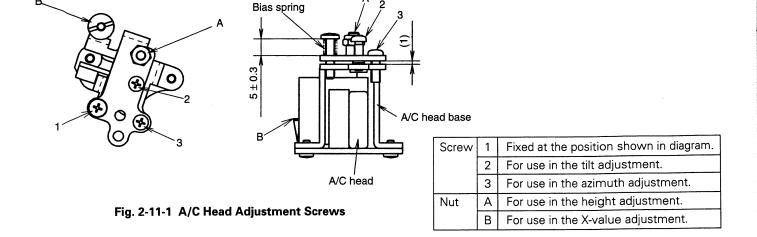
No.	Item	Measuring instrument & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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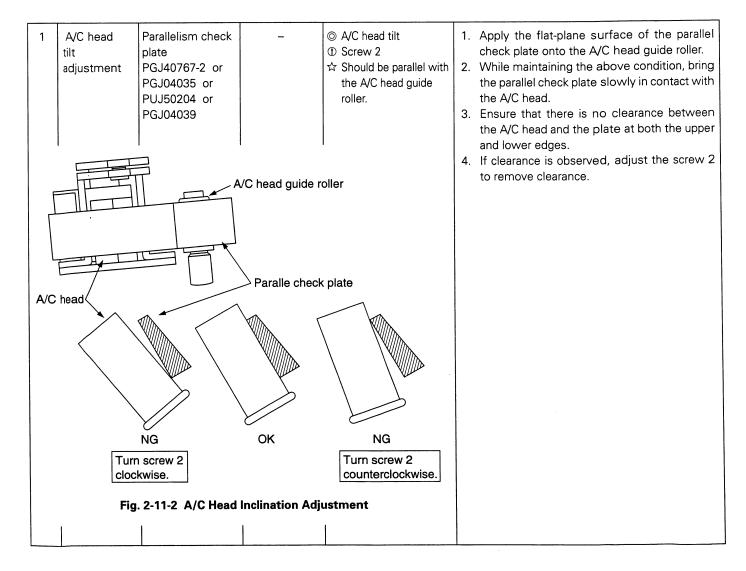
5	Check	Digital S tape (DS104)	Search, REV	 ◎ RF1[I/O JUNC] ◎ Between pinch roller and draw guide roller ① Draw guide roller ☆ No twist and no wrinkles ◎ Full erase head guide roller ① Full eerase head guide roller ☆ No twist and no wrinkles 	 14. Initiate reverse search mode. 15. Check that the tape is not twisted between the pinch roller and the draw guide roller and that it is not wrinkled by the A/C head guide roller. If tape twist or wrinkles are observed, fine adjust the draw guide roller height then check the adjustments in steps 11 to 13. 16. Check that the tape is not wrinkled by the full erase head guide roller. If tape wrinkles are observed, fine adjust the full erase head guide roller height.
		Digital S tape (DS124)	PLAY	◎ Take-up tension roller① Take-up tension roller☆ No damage	 17. Playback the digital S tape. 18. Check that the tape is not damaged by the Take-up tension roller. If tape damage is observed, fine adjust the Take-up tension roller height. 19. Initiate PLAY mode. 20. Observe the RF waveform and check that it is flat.
		Alignment tape MSHP Digital S tape (DS104)	PLAY	⊚ RF2 [I/O JUNC]	 21. Check that the positive going of the RF waveform is normal between loading and play and between reverse search and play. If it is abnormal, restart adjustments from step 7. 22. Tighten the set screws of the guide rollers. 23. Perform the same checking as for steps 20 and 21. 24. Using the digital S tape (DS104), initiate play at the beginning of winding, initiate reverse search at the end of winding, and check that the tape is not twisted or wrinkled by the guide rollers.
-					If tape twist or wrinkles are observed, review the adjustments from step 1 and repeat the required adjustments.

No.	Item	Measuring instrument & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	
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2.11 A/C HEAD ADJUSTMENTS

As the A/C head adjustments affect other adjustments in some degree, the adjustments should be repeated until all of the standards are met simultaneously.





No.	ltem	Measuring instrument & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
2	A/C head height Pre- adjustment	Digital S Tape (DS104)	PLAY mode	 ∅ A/C head height Nut A The CTL head should be partially visible, for about 0.5 mm, below the lower edge of the tape. 	 Initiate PLAY mode. Check that the tape is running along the lower flange of the A/C head guide roller. If tape wrinkle is observed, adjust the roller height to remove it. Adjust nut A to the adjustment level.
,	CTL head	d wri flar	e tape should no nkled or bent on nge section.	the	·
F	ig. 2-11-3 A/C 	Head Height Prelin	ninary Setting	Position	
3	azimuth alignment tape, adjustment MHP: for U-ver. MHPE: for E-ver.		 TP731 (CH-1) [AUDIO & LCD] TP732 (CH-2) [AUDIO & LCD] or LINE OUT (XLR 5-pin) [REAR PANEL] Screw 3	 Execute DIAG mode "58:" (see subsection 1.9). Initiate PLAY mode. Check that the tape is running along the lower flange of the A/C head guide roller. If tape wrinkle is observed, adjust the roller height to remove it. Adjust the screw 3 so that the CH1 and CH2 audio output levels are at the level. Check the A/C head tilt. If the angle is erroneous, re-adjust it and adjust the azimuth again (see sub section 2.11.1). 	
4	A/C head height adjustment	Oscilloscope alignment tape MBA-3: for U-ver. MBAE-3: for E-ver.	PLAY mode, DIAG mode "58:"	 TP731 (CH-1) [AUDIO & LCD] TP732 (CH-2) [AUDIO & LCD] or LINE OUT (XLR 5-pin) [REAR PANEL] Nut A ☆ Adjust the CH1 and 	 Execute DIAG mode "58:" (see subsection 1.9). Initiate PLAY mode. Adjust nut A to minimize the CH1 and CH2 audio output levels. (see Fig. 2-11-5) Turn the nut A to the clockwise (45 degree).
	CH1 OUT			CH2 level to minimize first, then turn the nut A to the clockwise (45 degree).	

	Γ-۲۱-Σ .gi∓
	I/O JUNC BOARD
	Fig. 2-11-5 Audio Output Waveforms
	GOOD NG
	TPB SqT PRP PRP PRP PRP PRP PRP PRP PRP PRP PR
	THE THE SAI
	should be maximum and the phases at the FRP and the non-recorded section should be as shown below.
3. Initiste PLAY mode. 4. Adjust nut B for the adjustment level.	B 1uV ① miołevew l'∃R eAT ☆
.(e.f noitoesdus	(WSHP-X) [I/O JUNC]
es) " :[']" abom DAID atusex3 .S	GND:fqT abom DAIQ (atsr-V) tnamtzuįbs GRT:GqT ": fg" aqst tnamngils
1. Remove the bottom cover (see subsection	X-value Oscilloscope PLAY mode © TP2: RF1

(⊚) tniog pointseaM (⊕) streq tnemtsujbA (☆) level tnemtsujbA

Adjustment procedure

Measuring instrument & slangis tuqnl

Item

.oN

9poM

No.	ltem	Measuring instrument & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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2.12 CHECK OF LINEARITY

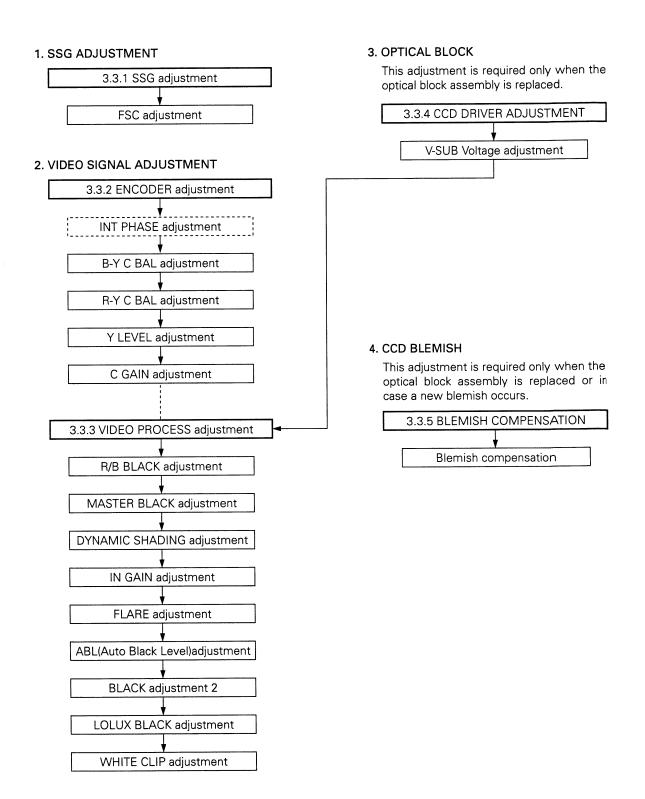
[CAUTION] • Proceed to the linearity check after having completed the mechanism adjustments and the tracking preset adjustment.

1	Connection	PC Linearity checker: KLJ0171 RS-232C connection cable: KLJ0123-2 Alignment tape "MSHP" "MSHP-X"	DIAG mode (There is no need to select the menu.)	© TRM [I/O JUNC] ⊚ HID [I/O JUNC]	 Connect the cable from the A/D card to the TRM(signal) and HID (trigger) test point on top of the I/O JUNC board. Remove the cap located on the side of the DY-90 and connect the pin jack of the RS-232C cable(KLJ0123-2) to the service connector. Connect the 4 pin connector to the DC out connector on the rear side. For the connection of other cables, refer to the instruction manual provided with the linearity checker. Boot the PC and set the DY-90 to the DIAG mode. 	
	A/D card RF envelope input Trigger input Note PC An RS-232C communication connector is available for servicing when the cap is removed.					
		1	Fig.:	2-12-1 	I	
2	Check		☆ No more than 5 μm	 Execute the linearity check program on the PC. For the operating instructions, refer to the instruction manual provided with the A/D board. Check that the measured linearity value is no more than 5 micro. If it is more than 5 μm, perform the subsection "2.10 ADJUSTMENT OF INTER-CHANGEABILITY" again, and then measure the linearity again. Note: Install all external equipment and place the set in a vertical position before carrying out checking. 		

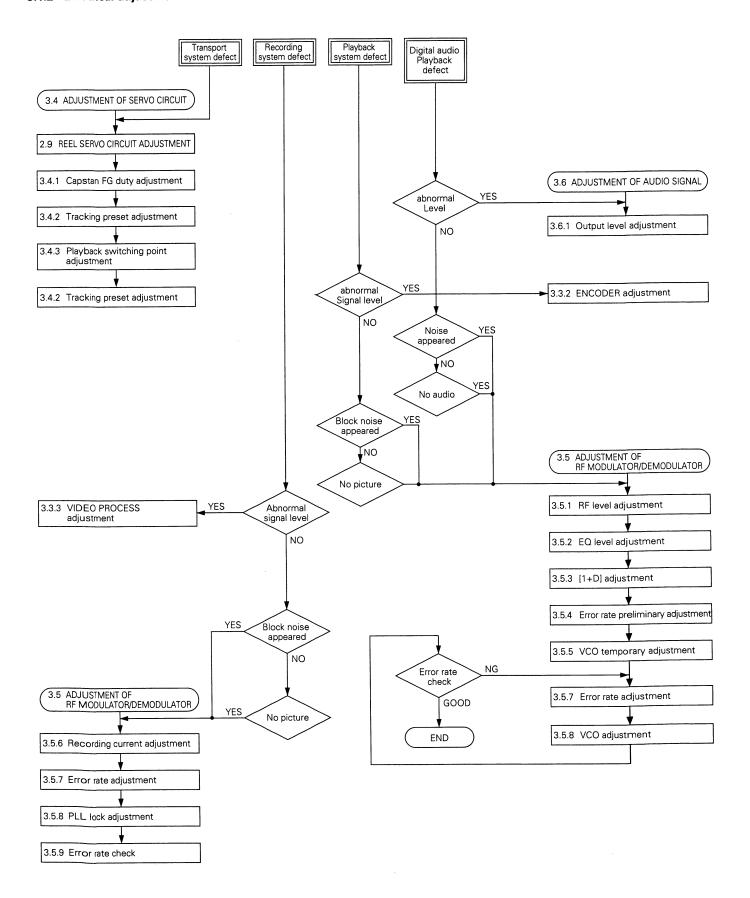
SECTION 3 ELECTRICAL ADJUSTMENT

3.1 ELECTRICAL ADJUSTMENT FLOWCHART

3.1.1 Electrical adjustment flowchart for camera section



3.1.2 Electrical adjustment flowchart for video section



3.2 REQUIRED MEASURING INSTRUMENTS FOR ADJUSTMENT, STANDARD SETUP

3.2.1 Precautions on electrical adjustment

- The electrical adjustment procedures described in this chapter apply to the cases that replacement of video heads or expendable parts of the mechanism needs electrical adjustment, there is something abnormal in output video signal, and there is a failure in the electrical circuit.
 - Before proceeding to adjust an item appearing in this chapter, make sure to check that the objective item is out of the specifications.
- For any item or part that needs mechanism adjustment before electrical adjustment, check to see whether it has undergone required mechanism adjustment or not before electrical adjustment.
- Check and adjustment require this set to be equipped with all the boards.

- 4. Don't cut off the power supply to this set by turning off the power switch or other means whenever the tape is travelling, otherwise the tape may be damaged.
- When a warning message appears, immediately turn off the power switch, and then investigate the cause and remove it. Before trying to turn on the set again, confirm that the cause of the warning message has completely been removed.
- 6. Start electrical adjustment at least 10 minutes after the VCR has been turned on.
 - Regarding an oscilloscope to be used for measurement, use the 10:1 probe.

3.2.2 Test instruments required for adjustment

Instrument	Condition	Instrument	Condition
Oscilloscope	Capable of measuring 100MHz or higher bands and calibrated.	DC power supply	AA-P250 or equivalent
Oscilloscope *	Capable of measuring 300MHz or higher bands and calibrated.	Lighting apparatus	3,200K halogen lamp
	* (This oscilloscope is used in Section 3.5, "ADJUST-MENT OF RF MODULATOR/DEMODULATOR CIRCUIT").	Color video monitor TV	
Frequency counter	Readable in 8 or more digits. Constancy of 0.1ppm/ 1× 10 ⁻⁷ or more at 0°C to 40°C.	Waveform monitor (WFM)	
Digital voltmeter	Input impedance of $10 M\Omega$ or more, and calibrated.	Digital S tape	For use in self-record-ing/playback.
Vectorscope	Must be calibrated, and capable of measuring 0-setup signals.	Lens	Fujinon A16 × 9B12U or equivalent
Audio tester	Must be calibrated.	Viewfinder	VF-P115 or equivalent
Spectrum analyzer	Must be calibrated. (This is not required when the BR-D92, BR-D80 or BR-D85 is available.)		

3.2.3 Special implements required for adjustment

1	Tripod base	2	Gray scale chart	3	Alignment tapes	4	Adjusting driver
	<ka-510 equivalent="" or=""></ka-510>		<part gs2l="" no.=""></part>		(Refer to 3.2.4)		YTU93004-2

3.2.4 Alignment tape specifications

MSHP-X

Video Signal	Audio Signal	Recording Time (min.)	Applications
Color bar (1 track per frame does not contain video.)	-	50	X-value adjustment and tracking preset adjustment.

MSHV-1

Video Signal	Audio Signal	Time (min.)	Applications
Motion picture	Music sound	50	Tracking preset adjustmentPlayback switching point adjustmentRF modulator/demodulator system adjustments

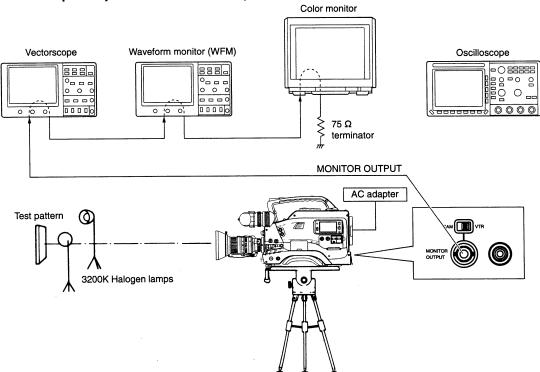
MS-1 [NTSC]

No.	Video Signal	Audio Signal	Time (min.)	Applications
1	Color bar	1 kHz/-20dBFs	10	Video system adjustments
2	Pulse & bar		5	
3	Multi-burst		5	Audio system adjustments
4	Bow-tie		5	

MS-2 [PAL]

No.	Video Signal	Audio Signal	Time (min.)	Applications
1	Motion picture	Music sound	. 15	
2	Colour bar		10	Video system adjustments
3	Pulse & bar	1 kHz/-20dBFs	5	
4	Multi-burst		5	Audio system adjustments
5	Bow-tie		5	

3.2.5 Standard setup for adjustment (For Camera adjustment)



3.2.6 Simultaneous display in both viewfinder and monitor

If the POWER switch is turned on while the DOWN button on the right side panel is pressed together, the same display as shown in the viewfinder also appears on the monitor screen. For cancelling this condition of simultaneous display in both viewfinder and monitor, turn the POWER switch off once and again turn it on to restore the set to the normal display mode.

3.2.7 Adjustment procedure in the adjustment mode

Some of the adjustment items should be adjusted in the "adjustment mode".

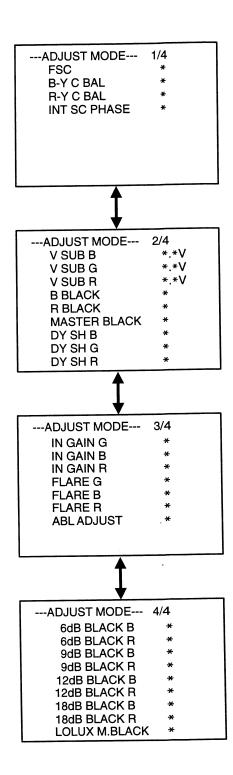
The adjustment mode allows to select an item on the monitor screen and adjust all of the required adjustments by using one potentiometer. The functions affected by each adjustment item are set automatically and the mechanical switch settings may be ignored. The adjustment procedure in the adjustment mode is described below.

- (1) Remove the right side cover. (See Section 1.3.1)
- (2) Set S1-1 on the CP board to ON to activate overlay display.
- (3) Select the adjustment item by pushing S9 and/or S10 on the CP board. (A blinking cursor is displayed on the left of selected item.)
- (4) Adjust the selected item with VR6 (ALARM control potentiometer) on the CP board. The adjusted value is displayed in the range between -128 and 127 or between -25 and 25.
- (5) Setting S1-1 to OFF terminates the adjustment mode and returns the monitor to the normal screen.

When the cursor is moved to another item or S1-1 is set to OFF, the adjusted data is stored in EEPROM (IC7 on the CP board). The data is then delivered to the camera when the power is turned on.

*NOTE -

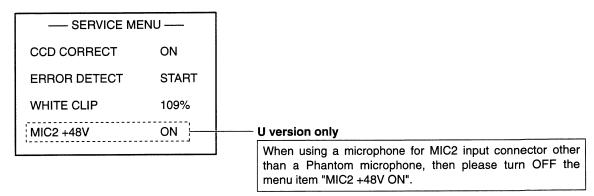
In the adjustment mode, the reference values are automatically set to necessory parameters when adjusting. Adjust items sequentially from top to bottom of the menu display.



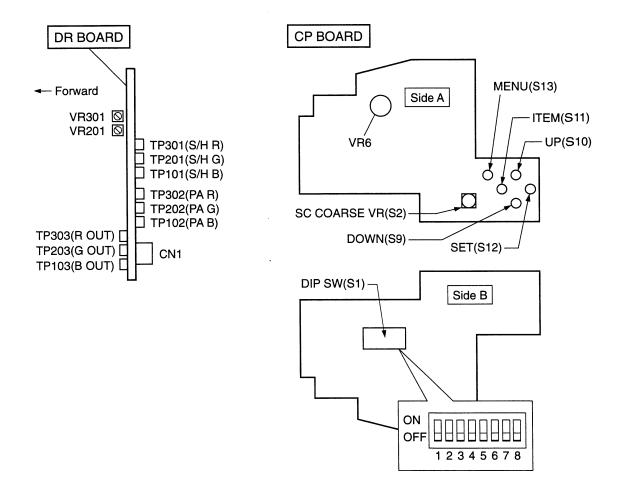
3.2.8 Service menu

Some of the adjustment items should be adjusted in the "SERV-ICE MENU".

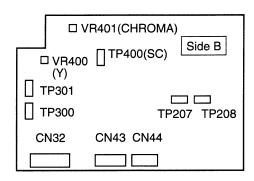
- (1) Set POWER switch to ON while pushing up the AUTOWHT. SW to initiate the SERVICE MENU.
- (2) Select the SERVICE item with ITEM button on the CP board.



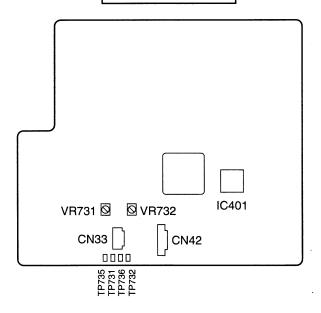
3.2.9 Potentiometers and test point layout



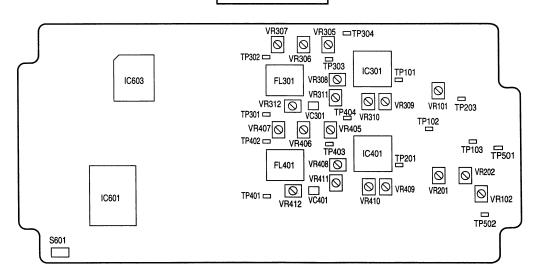
MAIN BOARD



AUDIO/LCD BOARD



SS/RFP BOARD

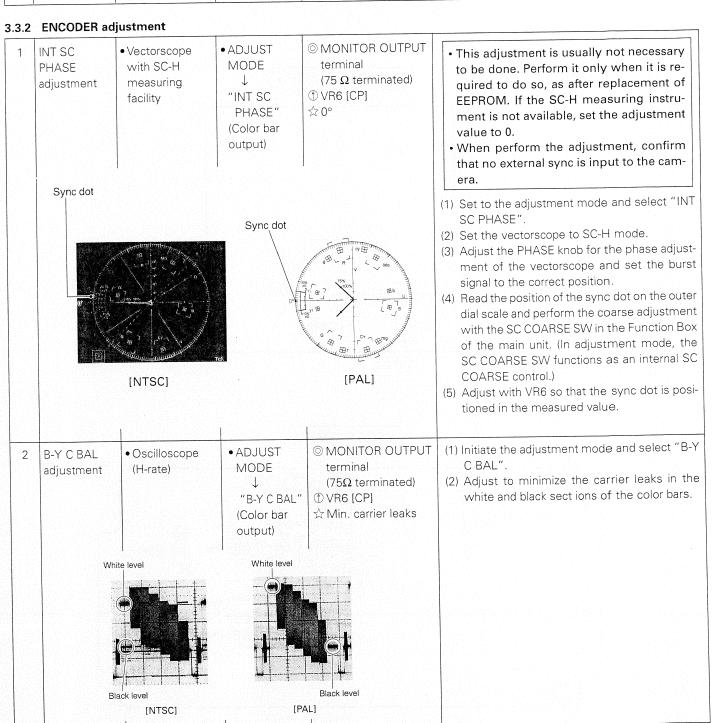


No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure

3.3 ADJUSTMENT OF CAMERA PART

3.3.1 SSG adjustment

1.	Fsc adjust- ment	• Frequency counter	• ADJUST MODE ↓ "FSC" (Color bar	© TP400 [MAIN] ① VR6 [CP] <ntsc> ☆ 3,579,545±10Hz <pal></pal></ntsc>	(1) Initiate the adjustment mode and select "FSC".(2) Adjust so that the SC frequency at the measurement point becomes equal to the specified level.
			output)	☆ 4,433,618±10Hz	

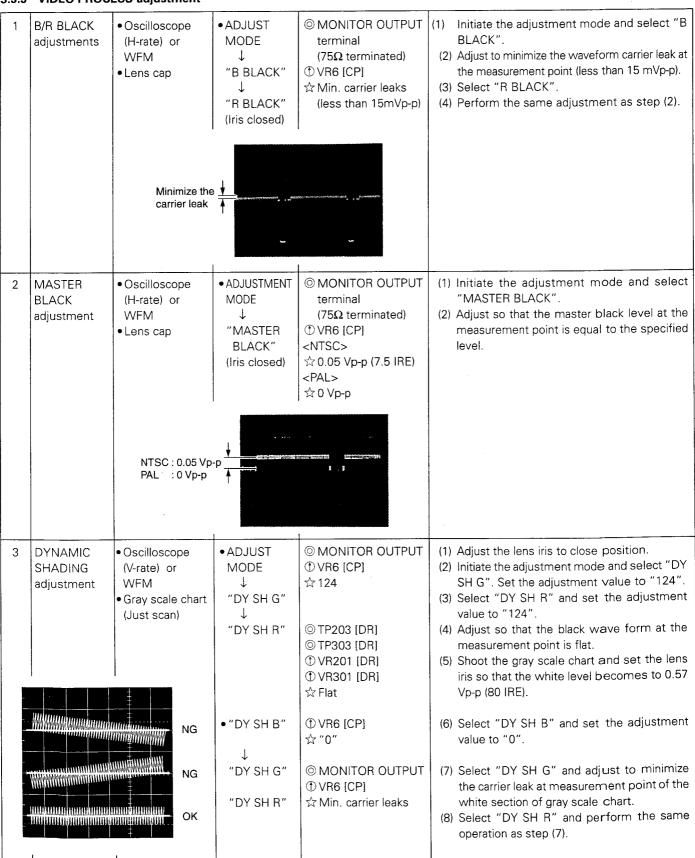


No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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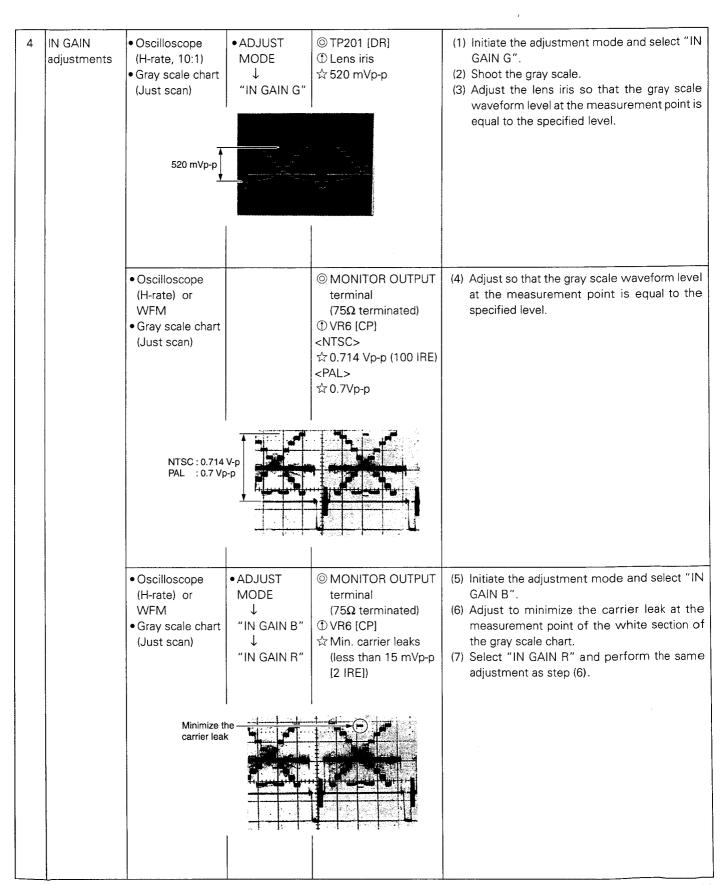
				-	
3	R-Y C BAL adjustment	Oscilloscope (H-rate)	• ADJUST MODE ↓ "R-Y C BAL" (Color bar output)	© MONITOR OUTPUT terminal (75Ω terminated) ① VR6 [CP] ☆ Min. carrier leaks	 (1) Initiate the adjustment mode and select "R-Y C BAL". (2) Adjust to minimize the carrier leaks in the white and black sect ions of the color bars.
4	Y LEVEL adjustment	Oscilloscope (H-rate)	Color bar output	MONITOR OUTPUT terminal (75Ω terminated) VR400 [MAIN] <ntsc> ∴ 0.714 Vp-p <pal> ☆ 0.7 Vp-p</pal></ntsc>	(1) Adjust so that the Y level of compsite signal at the measurement point becomes equal to the specified level.
		0.714 Vp-p	NTSC]		
		0.7 Vp-p	PAL]		
5	C GAIN adjustment ·	Oscilloscope (H-rate)	Color bar output	© MONITOR OUTPUT terminal (75Ω terminated) ① VR401 [MAIN] <ntsc> ☆ 0.286 Vp-p <pal> ☆ 0.3 Vp-p</pal></ntsc>	(1) Output the color bar signal. (2) Adjust so that the output signal burst level at the measurement point becomes equal to the specified level.

No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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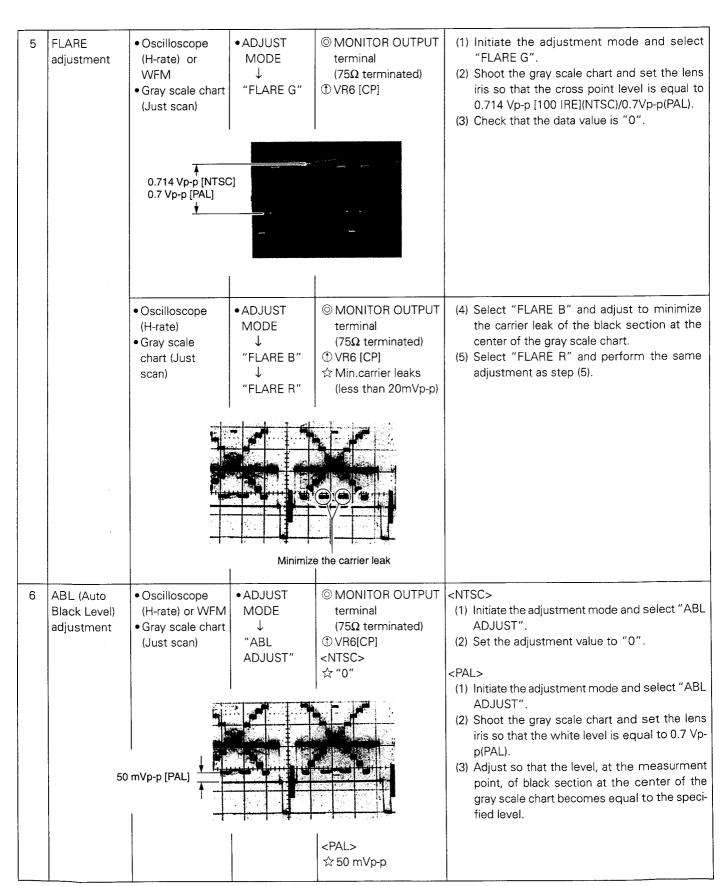
3.3.3 VIDEO PROCESS adjustment



No.	Item	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure	
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	No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (◎) Adjustment parts (⑪) Adjustment level (☆)	Adjustment procedure
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No.	Item	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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7	BLACK adjustment 2	• Vectorscope • LENS cap	● ADJUST MODE ↓ "6dB BLACK B" "6dB BLACK R" ↓ "9dB BLACK B" "9dB BLACK R" ↓ "12dB BLACK B" "12dB BLACK B" "12dB BLACK B" "18dB BLACK R" ↓ "18dB BLACK R"	⊚ MONITOR OUTPUT terminal (75Ω termination) ⊕ VR6 [CP] ☆ Noise dot become center	 (1) Put LENS cap or adjust the lens iris to close position. (2) Set the GAIN VR on vectorscope to maximam. (3) Initiate the adjustment mode. (4) Select "6dB BLACK B", "6dB BLACK R" and adjust so that the noise dot become center position of the vectorscope. (5) Select "9dB BLACK B", "9dB BLACK R" and perform the same operation as step (4). (6) Select "12dB BLACK B", "12dB BLACK R" and perform the same operation as step (4). (7) Select "18dB BLACK B", "18dB BLACK R" and perform the same operation as step (4).
		[NTSC]		[PAL]	
8	LOLUX BLACK adjustment		• ADJUST MODE ↓ "LOLUX M. BLACK"	① VR6 [CP] ☆ –60	(1) Select "LOLUX M.BLACK". (2) Adjust so that the level at the adjustment level.
9	WHITE CLIP adjustment	Viewfinder	• SERVICE MENU ↓ "W. CLIP"	© Viewfinder ☆ 109%	The white clip has been adjusted at 109% as initial setting. Re-adjust white clip level according to procedure, when required. (1) Set POWER SW to ON while pushing up the AUTO WHT. SW to initiate the SERVICE MENU and select "W. CLIP". (2) Set the white clip LEVEL to "109%". (3) Set AUTO WHT. SW to ON to store the "W. CLIP" data value.

No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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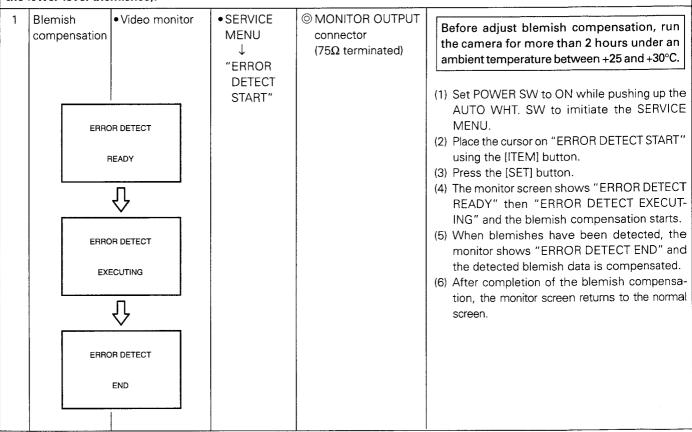
3.3.4 CCD driver adjustment

he following adju	Oscilloscope	• ADJUST MODE	◎ TP201 [DR]	(1) Adjust the lens iris so that the gray scale
V-SUB voltage adjustments	Monitor TV Gray scale 85 W Halogen lamp	"V SUB G" "V SUB B" "V SUB R"	① Lens iris ☆ 3 Vp-p and higher ③ TP201 [DR] ① VR6 [CP] ☆ 3 Vp-p ③ MONITOR OUTPUT terminal ① VR6 [CP]	waveform level at the measurement point i equal to the specified level. (2) Set the S1-1 on the CP board "ON" to se the ADJUST MODE. (3) Adjust the white peak of the gray scale is clipped to the specified level. (4) Shoot an incandescent lamp at the center of the monitor screen. (5) While opening the iris fully, confirm that there is smear in the picture.
				When black paper or cloth is used as background, smear is easy to see. (6) Swing the camera to the left and right (panning) and locate the position where the smear intensity maximizes. (7) Place the cursor to the "V SUB B". (8) While observing the monitor screen, adjust VR6 to minimize the smear intensity. (9) Place the cursor to the "V SUB R". (10) While observing the monitor screen, adjust VR6 to minimize the smear intensity. (11) Repeat the adjustments from step (7) to (10) two or three times. (12) Shoot an incandescent lamp at the center of the monitor screen. (13) Place the cursor to the "V SUB G". (14) While observing the monitor screen, adjust VR6 to minimize the smear intensity. (15) Set the S1-1 "OFF" and return to the norms screen.

No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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3.3.5 BLEMISH compensation

This camera incorporates a CCD blemish compensation function using an electronic memory. When the optical block assembly is replaced or in case a new blemish occurs, a renewed setting is required according to the following procedure. Note that the maximum number of compensated blemish is up to 13. (Compensated sequentially from the higher-level to the lower-lever blemishes).



3.4 ADJUSTMENT OF SERVO CIRCUIT

1	Capstan	No cassette	Automatic	1. Set the VCR to the non-cassette condition.
1	FG duty adjustment	DIAG mode (5d:)	adjustment	2. Set DIAG mode "5d:" (see the section 1.9).
		(30 ,	☆ Adjust the capstan FG duty to the 50% in automaticaly.	3. Press the ADVANCE button to start automatic adjustment. The counter displays "5d:P" during the automatic adjustment.
			☆ CPU measures FG level (Pin 74 of IC601 on the [SS/ RFP]) just before the capstan motor is stopped.	4. Check that the counter displays Normal end: "5d:Ed.00 00". Abnormal end: "5d:Er.00 00".

No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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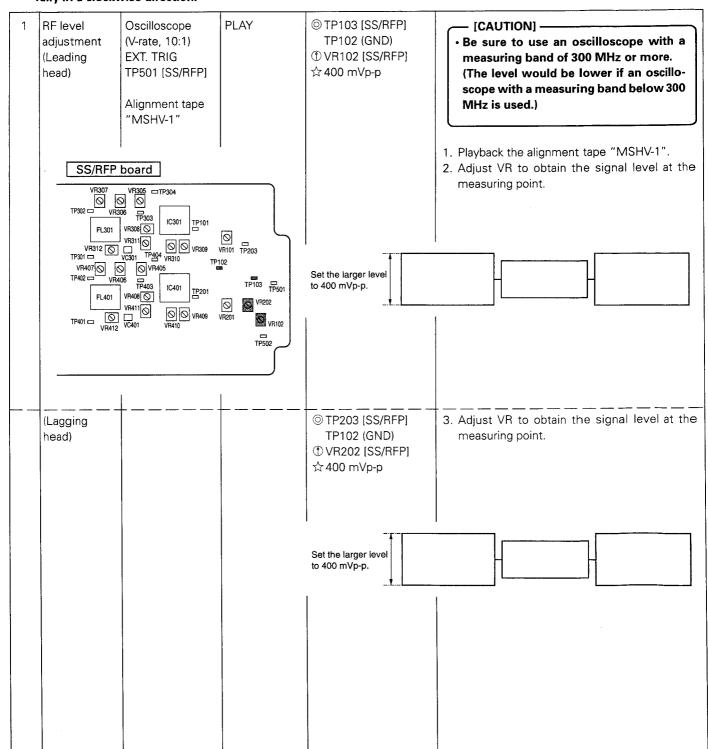
2	Tracking preset adjustment	X value alignment tape "MSHP-X"	PLAY mode, DIAG mode (§8:)	Automatic adjustment ☆ RF ENV (IC601 80 pin [SS/RFP]) envelope should be maximized as a result of the automatic adjustment.	Proceed to the following adjustment after having completed the X-value adjustment. 1. Set DIAG mode "58:" (see the subsection "1.9"). 2. Load and playback X value alignment tape "MSHP-X". 3. Press the SELECT button to start automatic adjustment. The counter displays "58:p" during the automatic adjustment. 4. Check that the counter displays "58:Ed.0000". [CAUTION] If the automatic adjustment fails, data is not written and the counter display shows "58:Er.0000". In this case, perform the adjustment again. If the PRESET button is pressed or another mode than PLAY is entered during adjustment, the counter display shows "58:Rb.0000". 5. Eject the X value alignment tape. 6. Perform subsection "3.4.3 Playback switching point adjustment".
3	Playback switching point adjustment	Alignment tape "MSHV-1"	PLAY mode DIAG mode (54:)	Automatic adjustment ☆ The leading edge of the HID signal should be as shown in the diagram below in automatically	Proceed to the following this adjustment after having completed the sub section "2.10.5 X-value adjustment". 1. Set DIAG mode " & 4: " (see the subsection 1.9). 2. Load and playback alignment tape "MSHV-1". 3. Press the SELECT button to start automatic adjustment. The counter displays " & 4: P " during the automatic adjustment. 4. Check that the counter displays " & 4 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6 & 6
		[SS/F	TP501)	310μs	• If the automatic adjustment fails, data is not written and the counter display shows "&4:€□.00 00 ". In this case, perform the adjustment again. • If the PRESET button is pressed or another mode than PLAY is entered during adjustment, the counter display shows "&4:86.00 00 ". 5. Eject the alignment tape. 6. Press the MENU button to quit the DIAG mode.

No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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3.5 ADJUSTMENT OF RF MODULATOR/DEMODULATOR CIRCUIT

[CAUTION]

- Switch auto tracking OFF. (DIAG menu " 4:8½ ½, ")
- Before proceeding to the following adjustments, playback the alignment tape "MSHV-1" and adjust the TRACKING
 potentiometer (on the MT board) so that the amplitude of the RF waveform at TP203 on the SS/RFP board is maximized.
- The VR311 and the VR411 on the SS/RFP cannot be used for adjustments with the NTSC model. Make sure to turn it fully in a clockwise direction.



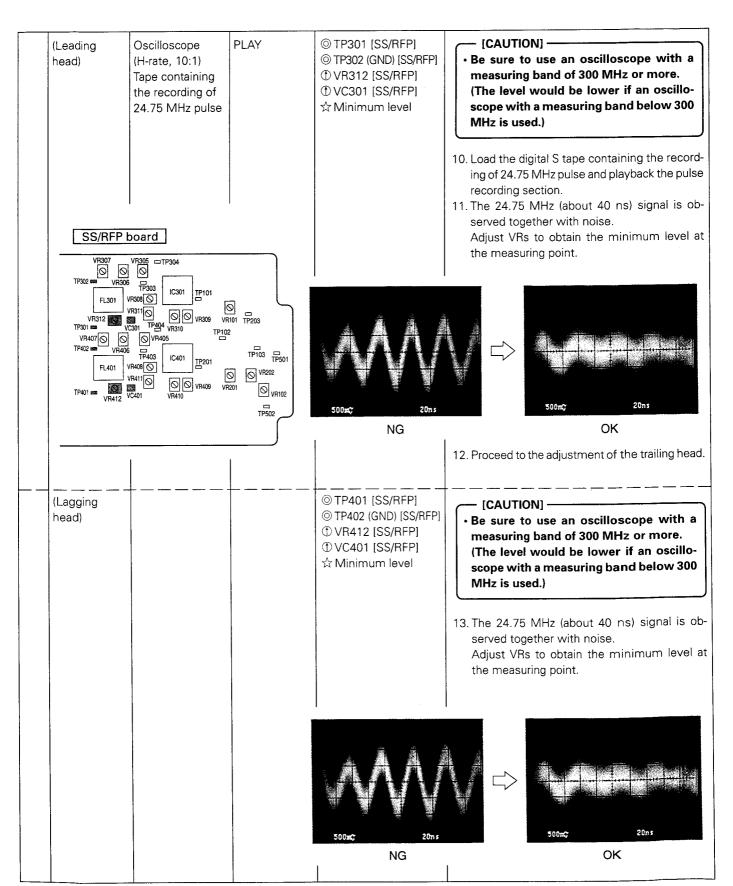
No.	Item Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure	
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			·-		
1P 1P 1P	SS/RFP I VR307 VR302 VR302 VR312 VR312 VR407 VR407 VR407 FL401	VR305 □TP304 6	PLAY VR101 TP203 102 TP103 TP501 VR202 VR201 VR102 TP502	© TP101 [SS/RFP] © GND : TP102 ① VR101 [SS/RFP] ☆ 150 mVp-p	CAUTION Be sure to use an oscilloscope with a measuring band of 300 MHz or more. (The level would be lower if an oscilloscope with a measuring band below 300 MHz is used.) 1. Playback alignment tape "MSHV-1". 2. Adjust VR to obtain the signal level at the measuring point.
(Laggi head)			TP502	© TP201 [SS/RFP] © GND : TP102 ① VR201 [SS/RFP] ☆ 150 mVp-p	3. Adjust VR to obtain the signal level at the measuring point.

No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
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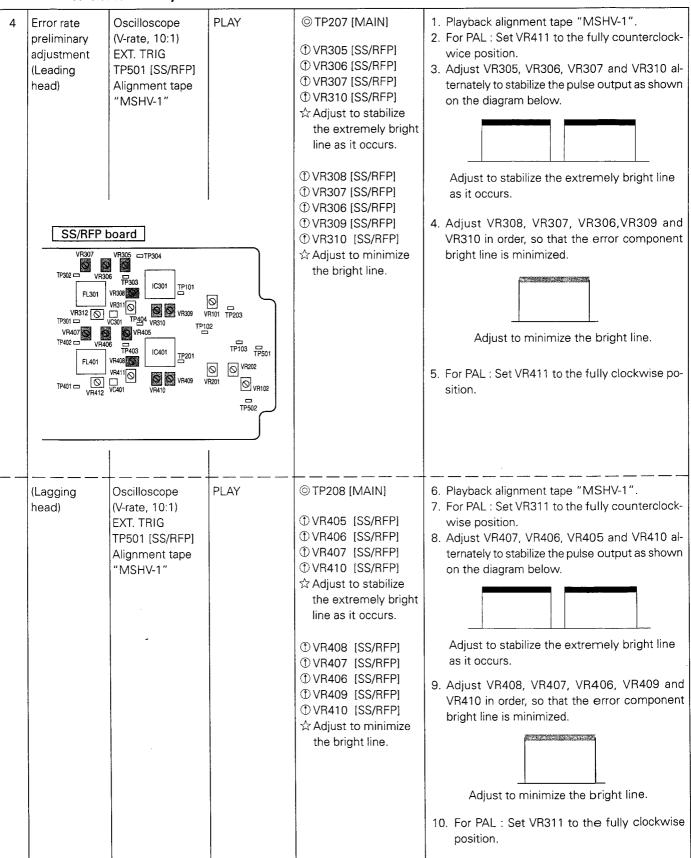
3	[1+D] adjustment	• This adjustment requires the use of BR-D92, BR-D80 or BR-D85 (Digitals VCR) or a spectrum analyzer. Therefore, the adjustment procedure in the case of the BR-D92, BR-D80 or BR-D85 is as described in subsection 3A and in the case when a spectrum analyzer is used as described in subsection 3B. Select either subsection according to the available instruments.				
3A	When the BR- D92/BR-D80/ BR-D85 is used (Prepara- tion)	BR-D92/ BR-D80/ BR-D85 mode	• Create a tape on which a 24.75 MHz pulse is recorded by using the following method.			
		Menu switch "No. 111", internal color bar	 Press the MENU button of the BR-D80 or BR-D85 to select "No. 111", then select "INTER-NAL COLOR BAR" and press the SET button. For BR-D92, select the internal signal generator by Input video signal button on the front panel. Turn power OFF then turn power ON again in the test mode. 			
		Test mode (<i>δF 00 00</i>)	A) Turn the power switch to on. B) Press the "COUNTER RESET", "FF" and "REW" buttons at the same time within 2 second after counter display " [] [] [] [] [] " is appeared. 3. Press the MENU or SET button so that the counter displays " [] [] [] [] ".			
		REC mode	 Press the COUNTER RESET button and check that the counter displays " FF P QQ QQ ". Load a digital S tape. Press the REC and PLAY buttons to start recording. After recording for a few minutes, press the STOP button. Press the COUNTER RESET button and check that the counter displays " FF End ". Eject the digital S tape. This tape contains the recording of the 24.7 MHz pulse. 			

No. Item Measuring instruments & Mode Adjustment parts (①) Adjustment procedure Adjustment level (☆) Adjustment procedure Adjustment level (☆) Adjustment procedure Adjustment level (☆) Adjustment procedure Adjustment procedure
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No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
3B	VR312 TP301 ■ VR407 ○ □ □ VR407 ○ □ □ VR407 ○ □ VR407	VR305 DTP304 VR308 DFTP303 VR308 DFTP303 VR308 DFTP303 VR309 VR309 VR309 VR309 VR309 VR405 DFTP303 VR408 DFTP304 VR40	PLAY PLAY	© TP301 [SS/RFP] © TP302 (GND) [SS/RFP] ① VC301 [SS/RFP] Minimum level is 24.75 MHz. © TP301 [SS/RFP] ① TP302 (GND) [SS/RFP] ① VR312 [SS/RFP] ☆ Adjust so that the 24.75 MHz level is -30 dB or lower compared to the 15 MHz level.	 Load and playback alignment tape "MSHV-1" Adjust VR to obtain the signal level at the measuring point. Adjust VRs to obtain the signal level at the measuring point. Repeat steps 2 and 3 above for a few times. MHz 24.75 MHz Proceed to the adjustment of lagging head.
	(Lagging head)			© TP401 [SS/RFP] © TP402 (GND) [SS/RFP] ↑ VC401 [SS/RFP] ↑ Minimum level is 24.75 MHz. © TP401 [SS/RFP] © TP402 (GND) [SS/RFP] ↑ VR412 [SS/RFP] ↑ Adjust so that the 24.75 MHz level is -30 dB or lower compared to the 15 MHz level.	6. Adjust VR to obtain the signal level at the measuring point. 7. Adjust VRs to obtain the signal level at the measuring point. 8. Repeat steps 2 and 3 above for a few times 30 dB or more

[CAUTION] The VR311 and the VR411 on the SS/RFP board cannot be used for adjustments with the NTSC model. Make sure to turn it fully in a clockwise direction.



No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
5	VCO preliminary adjustment (Leading head)	Digital voltmeter Oscilloscope (V-rate, 10:1) EXT TRIG TP501 Alignment tape "MSHV-1"	PLAY	© TP303 [SS/RFP] TP304 (GND) ① VR305 [SS/RFP] ☆ ((a+b)/2 - 0.05) V ± 0.01 V	 Playback alignment tape "MSHV-1". Connect the digital voltmeter to TP303 and the oscilloscope to TP300 [MAIN]. Set VR305 to the fully counterclockwise position, then rotate it slowly clockwise while observing the picture on the monitor. When the observed signal is locked as shown in the diagram, measure the voltage at TP303 using the digital voltmeter. Assume that this voltage is "a". Set VR305 to the fully clockwise position.
				(Leading head) (Lagging head)	→
				Freeze	Immediately Locked before locking
	VR307 VR307 VR307 VR312 VR312 VR407 VR407 FL401 TP401 TP401 VR412	VR305 ==TP304 VR308 IC301 TP101 VR308 IC401 TP201 VR408 IC401 TP201 VR408 IC401 TP201	No		 Press the "STOP" button, and then playback the alignment tape. Rotate VR305 slowly counterclockwise from the fully clockwise position while observing the oscilloscope waveform. When the observed signal is locked as shown in the diagram, measure the voltage at TP303 using the digital voltmeter. Assume that this voltage is "b". Substitute measured voltages "a" and "b" in the following equation. X = (a+b/2 - 0.05) Adjust VR305 so that the voltage at TP331 is equal to the value of "x" in the above equation.
	(Lagging head)			© TP403 [SS/RFP] TP404 (GND) ① VR405 [SS/RFP] ☆ ((a+b)/2 - 0.05) V ± 0.01 V	9. Connect the digital voltmeter to TP403 and th oscilloscope to TP301 [MAIN]. 10. Adjust VR so that the same adjustment of leading head.

[CAUTION] Before proceeding to Section 3.5.6, "Recording current adjustment" and Section 3.5.7, "Error rate adjustment", complete 2.4.3, "Switching point adjustment" and switch auto tracking ON.

	•	-	•	
6	Recording current adjustment	Digital S tape	STOP mode DIAG mode (기군:)	Automatic adjustment

- The automatic adjustment is executed in the following sequence.
- A) It so recorded the signal 4 times that recording current shifted 8 steps (the total required time is about 2 minutes). During this the display shows

- B) Tape is rewound to the recording start point in REV search mode. The display shows " 72:P .20 00" during this.
- C) The VCR enters PLAY mode and detects the playback level of the recorded section. Then the optimum playback level of each head (CH1 leading, CH2 trailing) is identified and the recording currents are determined based on this analysis (the required time is about 2 minutes). During this operation, the display shows

data 1: The head being detected (1 to 4). data 2: Hex data between 00H and FFH. When the playback levels of all the steps have been detected and the optimum values are identified, the displayed data changes.

D) When the optimum values of all the heads have been identified, the VCR enters STOP mode and automatic adjustment is completed.

- 1. Set DIAG mode " 7,2": .-- -- " (see the subsection 1.9).
- 2. Load a digital S tape and put the VCR in stop mode
- 3. Press the SELECT button to start automatic adjustment.
- 4. Automatic adjustment starts when "P ** **" is displayed.

Normal end : " Ed " is displayed on the LCD.

Abnormal end: " E_{Γ} ** "is displayed. In this case a re-adjustment is automatically executed.

- 5. Quit the DIAG mode.
- 6. Proceed to sub section "3.5.7 Error rate adjustment".

- [CAUTION] -

Counter display " ??: ¿r . [] [] [] " appears for one of the following reasons;

- a) the PRESET button is pressed during operation; or
- b) the VCR mode is changed; or
- c) the tape end is detected; or
- d) the adjustment is defective.

If the reason is a) or b), restart adjustment from the beginning. If the reason is c), rewind tape and restart adjustment. If the reason is d), perform the adjustments in subsection "3.5.1" to "3.5.5" again.

No.	Item	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
-----	------	---------------------------------------	------	---	----------------------

[CAUTION] Before proceeding to subsection "3.5.7 Error rate adjustment", complete "3.4.3 Playback switching point adjustment" and switch auto tracking ON.

au	justment" and switch	auto tracking (JN.	
7 Error rate adjustmen (Preparatio		REC		Load a digital S tape. A self-recording tape is made by shooting moving images for a few minutes.
VR302 == F VR301 == VR407 (C TP402 == F	VR306 TP303 IC301 TP101 VR308 VR309 VR309 VR311 VR309 VR309 VR406 TP403 IC401 TP201 VR408 VR408 IC401 TP201 VR411 VR408 VR408 VR409	PLAY PLAY PLAY PLAY PLOS TP103 TP501 VR202 VR201 VR202 VR201 TP502	© TP300 [MAIN] ① VR308 [SS/RFP] ① VR307 [SS/RFP] ① VR306 [SS/RFP] ① VR309 [SS/RFP] ☆ Minimized pulse count in osciloscope display Minimize the frequency counter	 PAL set VR411 to the fully counterclockwise position (for E-Ver.). Playback the digital S tape which was recorded in the preparation stage. Connect the oscilloscope and frequency counter to TP300. While observing the oscilloscope and frequency counter, adjust VR308 to minimize the frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency count.) While observing the oscilloscope and frequency counter, adjust VR307 to minimize the frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency count.) While observing the oscilloscope and frequency counter, adjust VR306 to minimize the frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency count.) While observing the oscilloscope and frequency count. While observing the oscilloscope and frequency count. While observing the oscilloscope and frequency count. Wounter, adjust VR309 to minimize the frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency count.)
		PLAY	 ◆ VR310 [SS/RFP] ☆ Minimize the frequency counter display ◆ VR307 [SS/RFP] ◆ VR306 [SS/RFP] ☆ Minimize the frequency counter display (no more than 3 kHz for Uver.). (No more than 1.5 kHz for E-ver.) 	 Initiate REV search mode. While observing the frequency counter, adjust VR310 to minimize the frequency. Initiate play mode. While observing the oscilloscope and frequency counter, adjust VR307 and VR306 alternately to minimize the frequency count. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency count.) Proceed to the adjustment of the lagging head. PAL set VR411 to the fully clockwise position.

No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure
	<u> </u>				

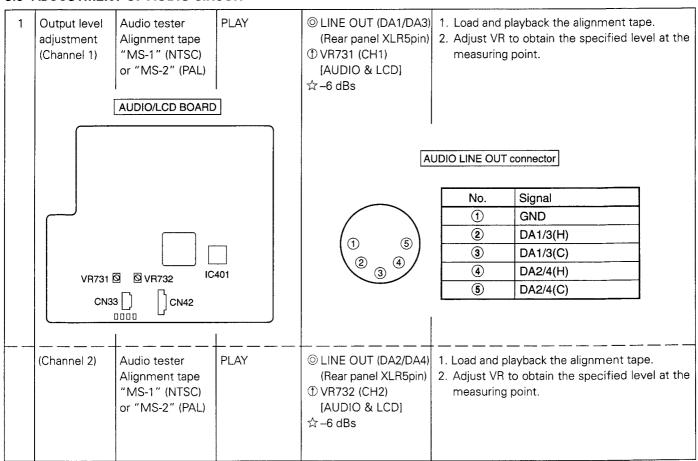
	Т	Γ	1		
	VR312 S TP301 S VR407 VR40 TP402 VR40	VR305 □TP304 06 〒9303	PLAY PLAY	© TP301 [MAIN] ① VR408 [SS/RFP] ① VR407 [SS/RFP] ① VR409 [SS/RFP] ☆ Minimum pulse count in osciloscope Minimize the frequency counter display ① VR407 [SS/RFP] ☆ Minimize the frequency counter display ① VR407 [SS/RFP] ☆ Minimize the frequency counter display (No more than 3 kHz for U-ver.). (No more than 1.5 kHz for E-ver.)	 For PAL: Set VR311 to the fully counterclockwise position (for E-Ver.). Playback the digital S tape which was recorded in the preparation stage. Connect the oscilloscope and frequency counter to TP301. While observing the oscilloscope and frequency counter, adjust VR408 to minimize the frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency count.) While observing the oscilloscope and frequency counter, adjust VR407 to minimize the frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency count.) While observing the oscilloscope and frequency counter, adjust VR406 to minimize the frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency count.) While observing the oscilloscope and frequency counter, adjust VR409 to minimize the frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency count.) Initiate REV search mode. While observing the frequency counter, adjust VR410 to minimize the frequency. Initiate play mode. While observing the oscilloscope and frequency counter, adjust VR407 and VR406 alternately to minimize the frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency. (Adjust VR to obtain the specified minimum count of pulse and smallest frequency. For PAL: Set VR311 to fully clockwise position.
8	VCO adjustment				Adjust the same adjustment "3.5.5 VCO preliminary adjustment (Leading head/Lagging head)". • For the adjustment, make sure to playback the digital S tape which was recorded during the preparation stage.

	No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
--	-----	------	---	------	---	----------------------

che	SS/RFP b VR307 TP302 VR306 FL301 V VR407 VR407 TP402 VR406 FL401 V	VR305 □TP304 VR305 □TP304 O	PLAY PLAY	© TP300 [MAIN] ☆ No more than 3 kHz for U-ver. No more than 1.5 kHz for E-ver. ① VR306 [SS/RFP] ① VR307 [SS/RFP]	 Playback the digital S tape which was recorded in the preparation stage. Connect the frequency counter to the adjustment point and check the error rate. For PAL: Set VR411 to the fully counterclockwise position (for E-Ver.). The error rate check result is OK if the frequency counter reading is no more than 3 kHz (for U-Ver.) 1.5 kHz (for E-Ver.) and almost equal to the value set by the prevously-made error rate adjustment. (See subsection 3.6.7) After PLL lock adjustment, if the error rate has increased (i.e. the reading is larger by 10% or more than the frequency value set by the error rate adjustment), adjust VR306, VR307 again and proceed to subsection "3.5.5 VCO adjustment".
La hea		Digital S tape (DS104) Frequency counter		© TP301 [MAIN] ☆ No more than 3 kHz for U-ver. No more than 1.5 kHz for E-ver. ① VR406 [SS/RFP] ① VR407 [SS/RFP]	 Playback the digital S tape which was recorded in the preparation stage. Connect the frequency counter to the adjustment point and check the error rate. For PAL: Set VR311 to the fully counterclockwise position (for E-Ver.) The error rate check result is OK if the frequency counter reading is no more than 3 kHz (for U-Ver) 1.5 kHz (for E-Ver.) and almost equal to the value set by the prevously-made error rate adjustment. If the error rate has increased (i.e. the reading is larger by 10% or more than the frequency value set by the error rate adjustment), adjust VR406, VR407 again and proceed to subsection "3.5.5 VCO adjustment". For E-ver.: set VR411 to the fully clockwise position.

No.	ltem	Measuring instruments & Input signals	Mode	Measuring point (⊚) Adjustment parts (⊕) Adjustment level (☆)	Adjustment procedure
-----	------	---	------	---	----------------------

3.6 ADJUSTMENT OF AUDIO CIRCUIT



3.7 ADJUSTMENT OF S/S CIRCUIT

1 Remaining battery detection circuit adjustment (automatic adjustment)	+12 V ± 0.05 V ↓ DC INPUT	REC, DIAG mode (BE:)	Automatic adjustment	 Input +12 V +/-0.05 V (4 A or more) to the DC INPUT connector. Set the VCR to the REC mode. Set DIAG mode "₽₽:" (see the subsection "1.9"). Press the select button to start automatic adjustment. "₽₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽
				6. Turn power OFF to quit the DIAG mode.

SECTION 4 CHARTS AND DIAGRAMS

SCHEMATIC DIAGRAM NOTES

· Schematic safety precaution

♠ Parts are safety related parts.

When replacing them, be sure to use the specified parts.

· Voltage and waveform measurements

Voltage:

Measured with digital voltmeter in DC range;

iris closed in REC mode.

Value in () is indicated only in the case PB voltage is different from that in REC mode.

Waveform: Gray scale illuminated at more than 4000 lux at 3200K lighting.

· Unit of value

Unless otherwise specified

- 1) Resistance is in Ω (1/6 W)
- 2) Capacitance is in μF
- 3) Inductance is in μH

· Expression of wiring

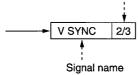
As the following circuit diagram is divided to print on some sheets, such an indication as the following is found in the case the wiring extends over two or more divided sections.

1) Circuit diagram divided into two or more sections:

Board	Board Name	Number of divided sections			
06 07 08 09	MAIN SS/RFP AUDIO & LCD PR OVERALL	1/10 - 10/10 1/6 - 6/6 1/5 - 5/5 1/4 - 4/4 1/6 - 6/6			

Indication of wiring which extends to another section: (Example)

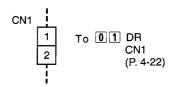
This indication that wiring extends to "2/3" of the diagram.



In the above case, the end of the wiring is connected to the "V SYNC" on the 2nd section of the diagram.

· Wiring of connector

(Example)



In the above example, CN1 is connected with CN1 on **1** DR board.

· Signal flow on the diagram

The following allow marks indicate the specified signal paths respectively.

> : Recording or EE signal path

: Recording and Playback signal path

Others

In regard of a board assembly whose circuit is composed of multilayered board patterns such 4- or 6-layered patterns, board patterns of the power supply lines and grounding lines are omitted in this section.

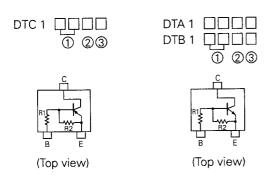
Note: For detail of each electrical part, refer to Section 6 "ELECTRICAL PARTS LIST" by it symbol number.

■ REPLACING SURFACE MOUNT "CHIP" COMPONENTS

- Some resistors, shorting jumpers (0 Ω resistance), ceramic capacitors, transistors, and diodes are chip parts. These chip parts cannot be reused after they are once removed.
- Chip resistors used in some circuits are of high precision type having little error in resistance.
 - To demonstrate the full capacity of this set, place an order for proper parts referring to the diagrams and parts lists in the section 5.
- Soldering cautions:
 - 1) Do not apply heat for more than 3 seconds.
 - 2) Avoid using a rubbing stroke when soldering.
 - 3) Discard removed chips; do not reuse them.
 - 4) Supplementary cementing is not required.
 - 5) Use care not to scratch or otherwise damage the chips.

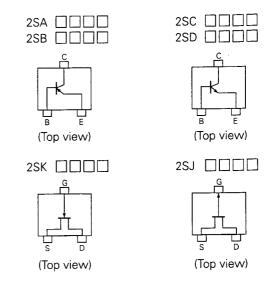
■ CHIP PARTS PIN ARRANGEMENT

[1] Digital transistors

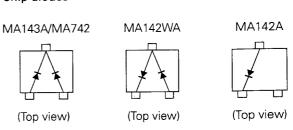


- 1 Two digits show resistance of R1 in abbreviation.
 - 43 : 4.7 kΩ 14 : 10 kΩ 24 : 22 kΩ 44 : 47 kΩ
- ② Roman letter show the resistive ratio between R1 and R2 in abbreviation.
 - E: R2/R1 = 1/1 Y: R2/R1 = 5/1 W: R2/R1 = 2/1 X: R2/R1 = 1/2 T: R2 is opened.
- 3 Symbol the shape of resistor in abbreviation.

[2] Chip transistors and chip F.E.T.s

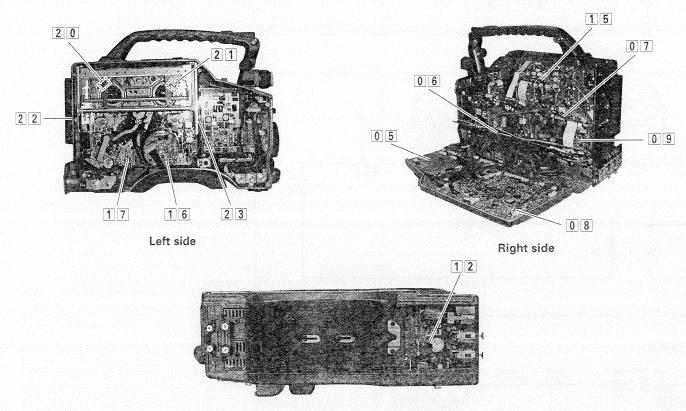


[3] Chip diodes



4.1 INDEX TO PAGES OF MAIN BOARDS AND CIRCUIT BOARD LOCATION

4.1.1 Circuit board location

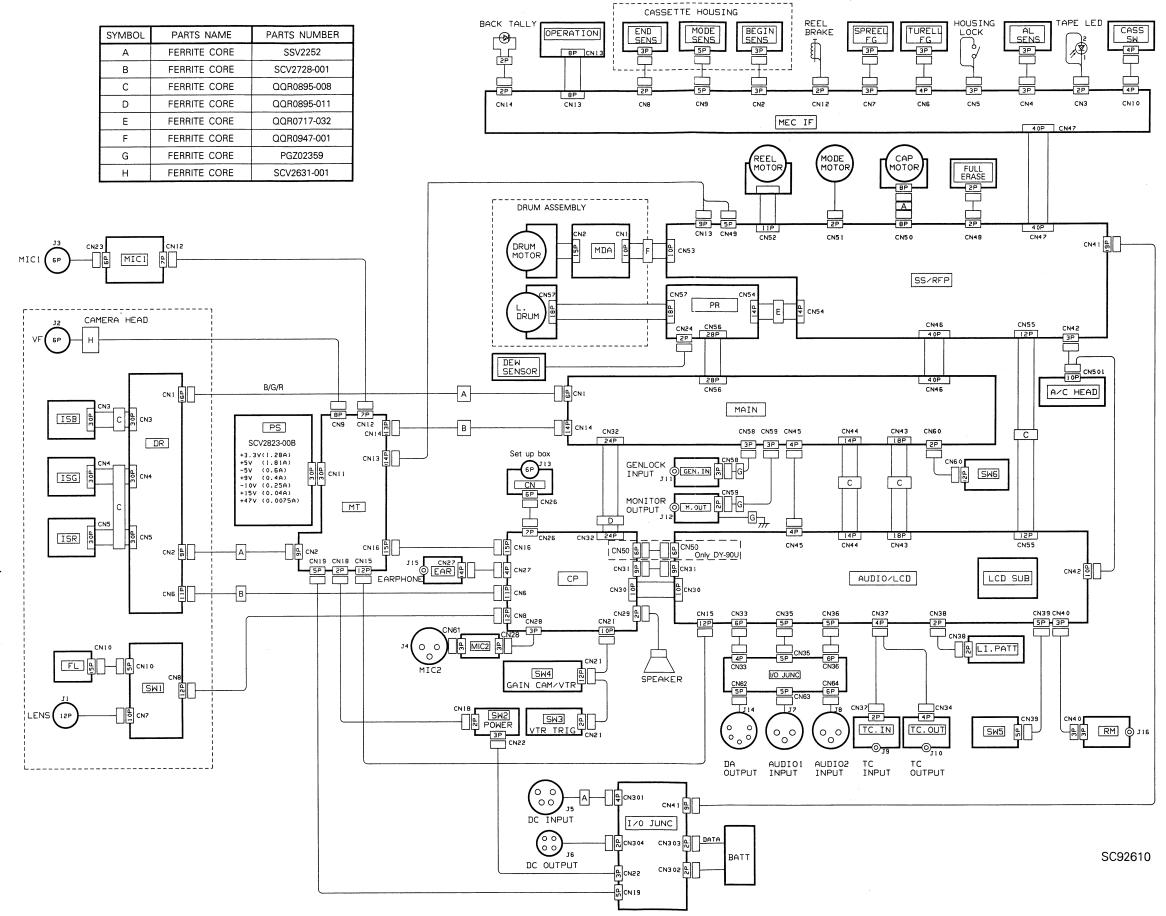


Bottom side (connector box)

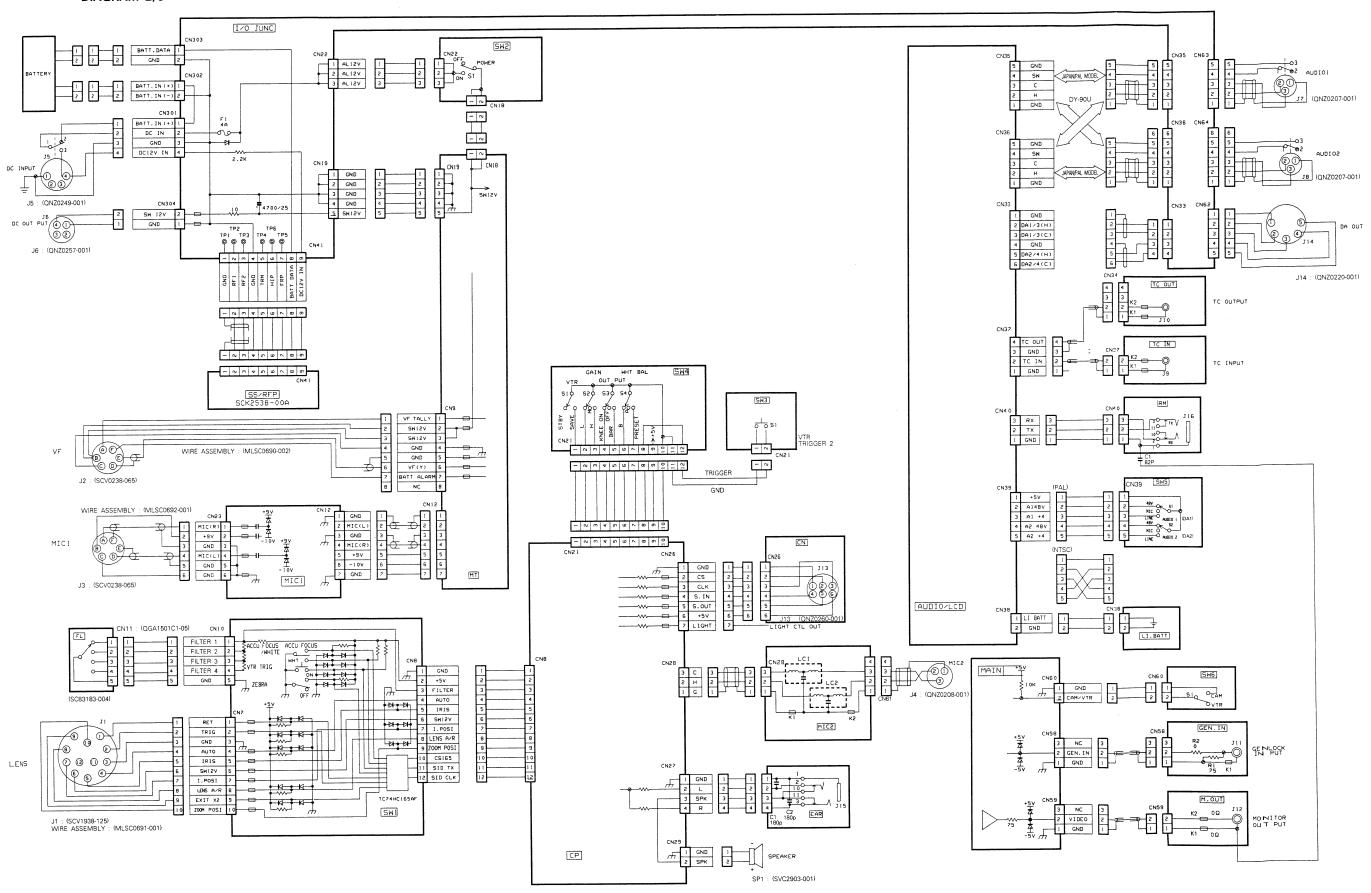
Board		T	Page of diagram		Board	5 111		Page of diagram		
No.	Board Name	Block diagram	Schematic diagram	Circuit board	No.	Board Name	Block diagram	Schematic diagram	Circuit board	
0 1	DR	4-11	4-22	4-23	31	TC. OUT		4-5	4-72	
02.	03,04 ISB, ISG, ISR	4-11	4-24	4-25	3 2	EAR		4-5	4-72	
05	CP	4-12	4-26, 4-28	4-27, 4-29	3 3	LI. BATT	4-19	4-5	4-71	
0 6	MAIN	4-13 to 4-15	4-30 to 4-39	4-30 to 4-43	3 5	GEN. IN		4-5	4-72	
07	SS/RFP	4-16, 4-17	4-44 to 4-49	4-50 to 4-53	3 6	MON, OUT		4-5	4-72	
08	AUDIO & LCD	4-18, 4-19	4-54 to 4-60	4-61, 4-62	3 7	RM		4-5	4-72	
0 9	PR	4-20	4-63 to 4-66	4-67	3 8	CN		4-70	4-71	
10	MT		4-68	4-69	4 1	MIC 2		4-70	4-71	
11	LCD SUB	4-19	4-68	4-69	3 9	PS		4-74	<u> </u>	
12	I/O JUNC		4-72	4-72	4 0	MEMORY		4-70	4-71	
13	MIC 1		4-70	4-71		OVERALL		4-4 to 4-9		
14	OPERATION		4-70	4-71						
15	MEC I/F		4-6	4-71						
16	MDA		4-73	4-73						
17	A/C HEAD	4-18	4-9	4-73		(1997)				
18	MODE SENSE		4-6	4-73		A CONTRACT CONTRACT CONTRACT	and the second second second			
19	AL SENSE		4-6	4-73						
20	TU SENSE		4-6	4-73			2010/04/2017 19:05:05	100.000		
21	SP SENSE		4-6	4-73	11					
22	BEGIN SENSE		4-6	4-73						
23	END SENSE		4-6	4-73						
24	SW 1		4-70	4-71						
25	SW 2		4-5	4-72						
26	SW 3		4-5	4-72						
27	SW 4		4-70	4-71						
28	SW 5		4-5	4-72						
29	SW 6		4-5	4-72						
30	TC. IN		4-5	4-72						

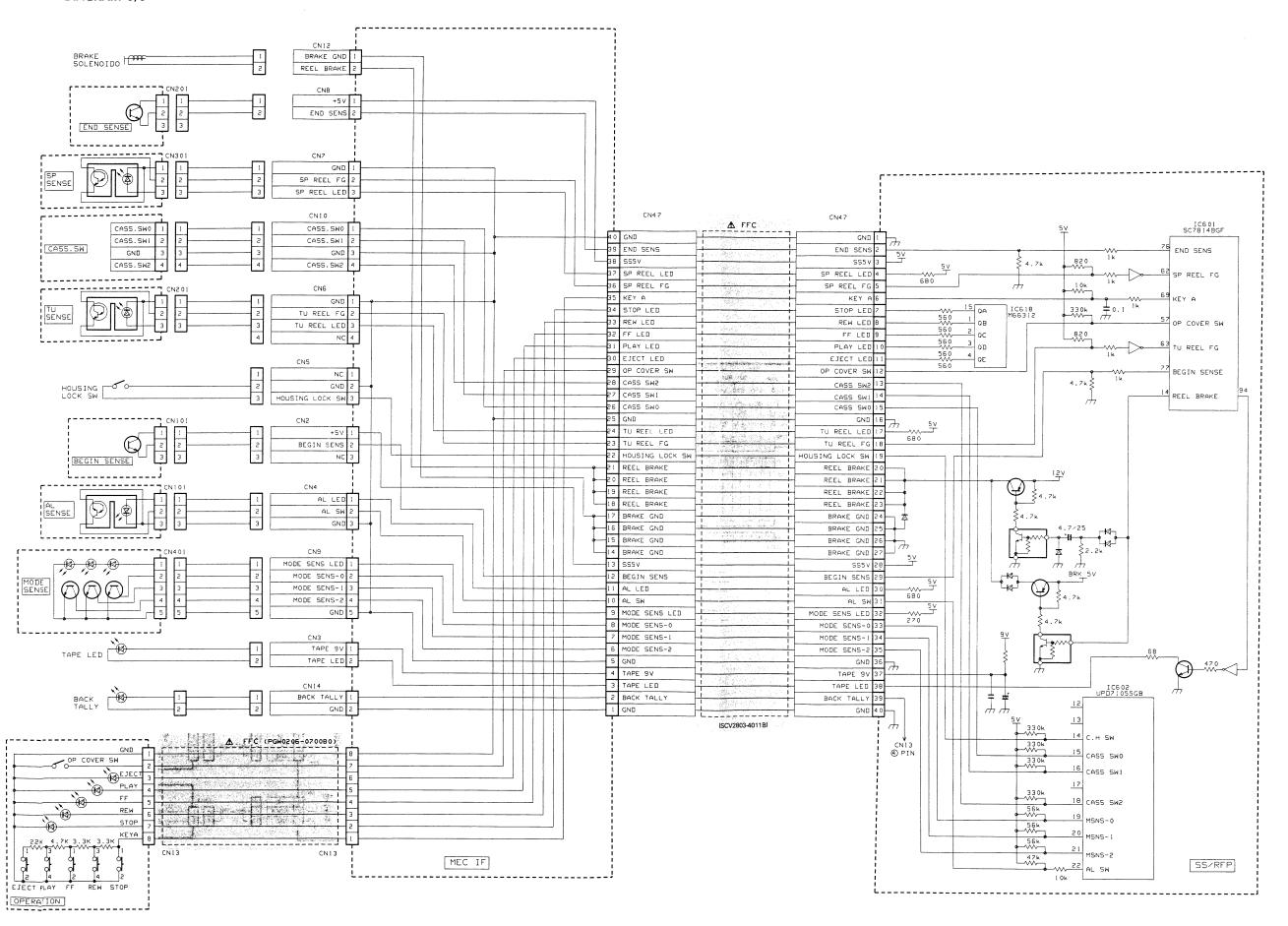
4.2 OVERALL WIRING DIAGRAM

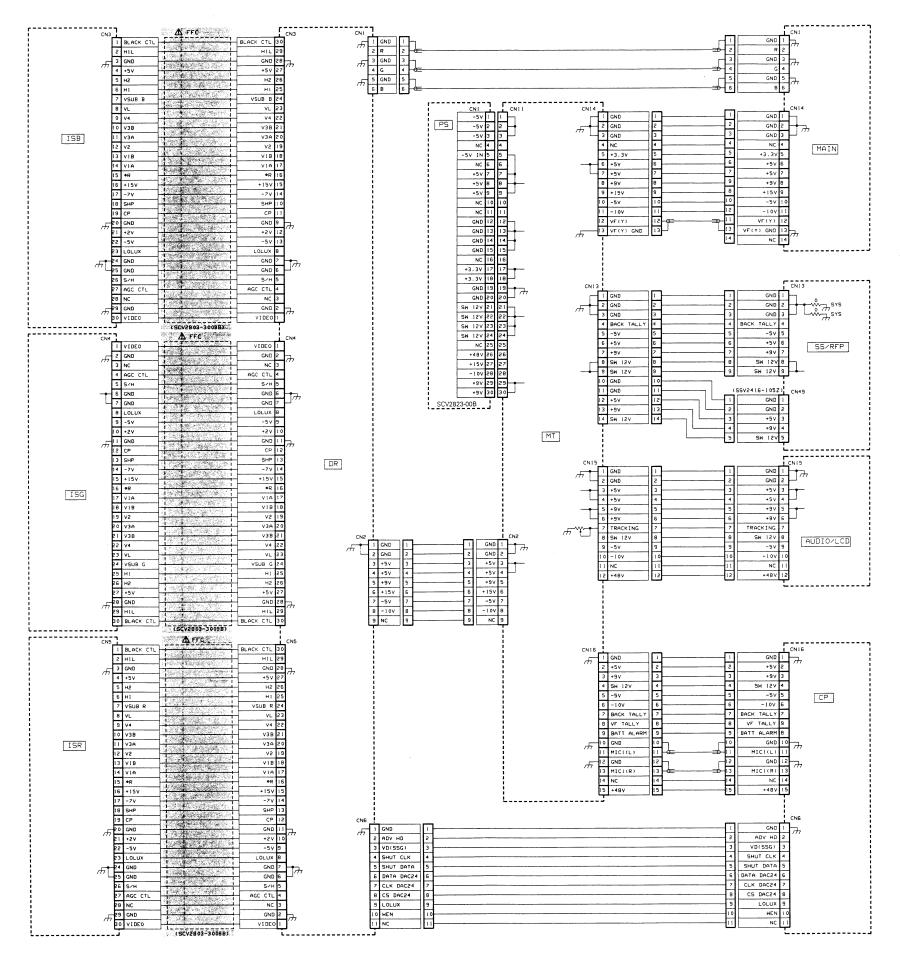
- DIAGRAM 1/6 -

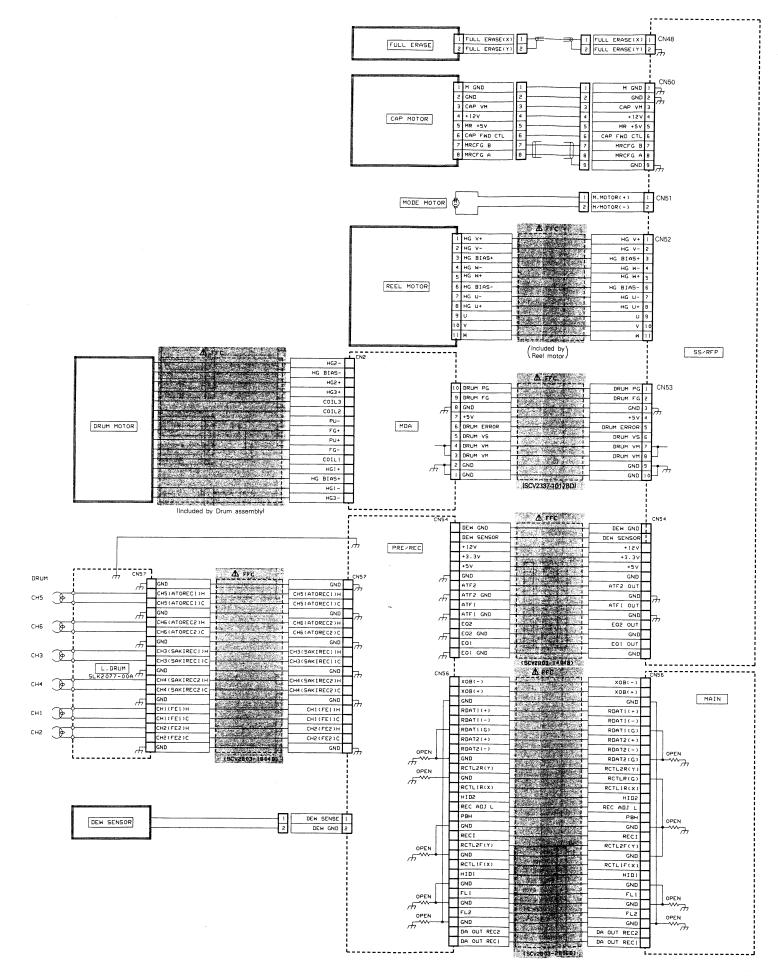


- DIAGRAM 2/6 -







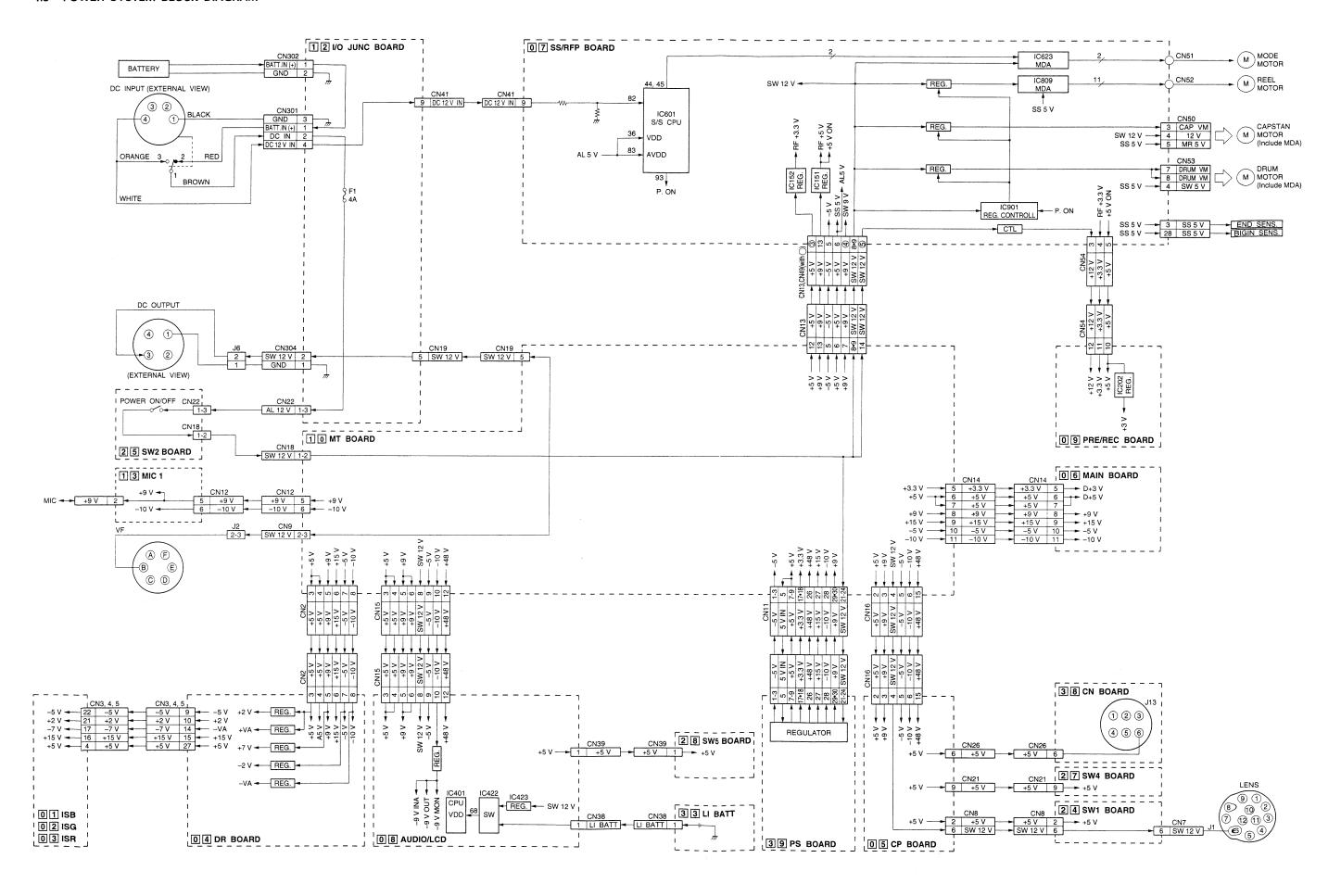


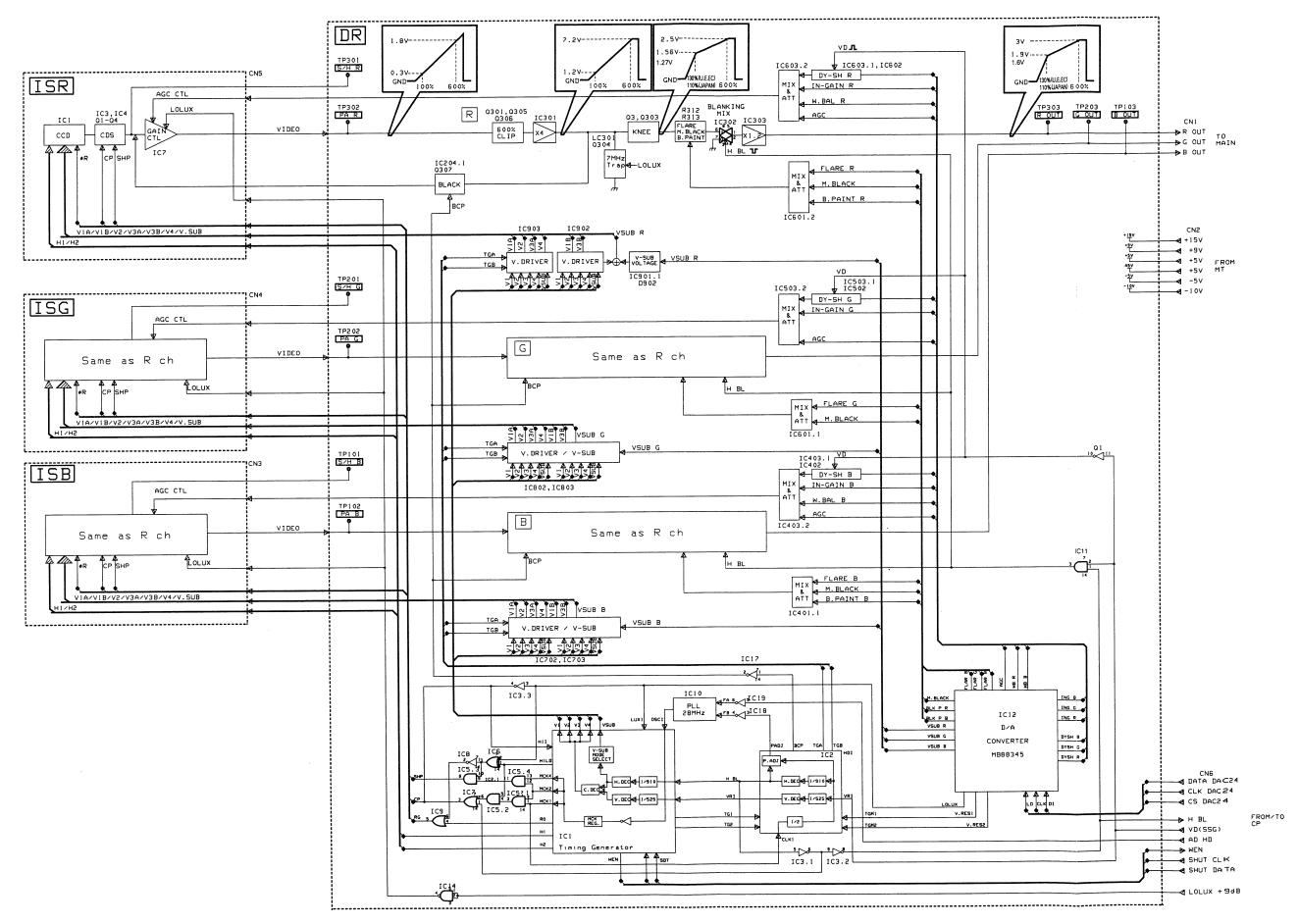
- DIAGRAM 5/6 -

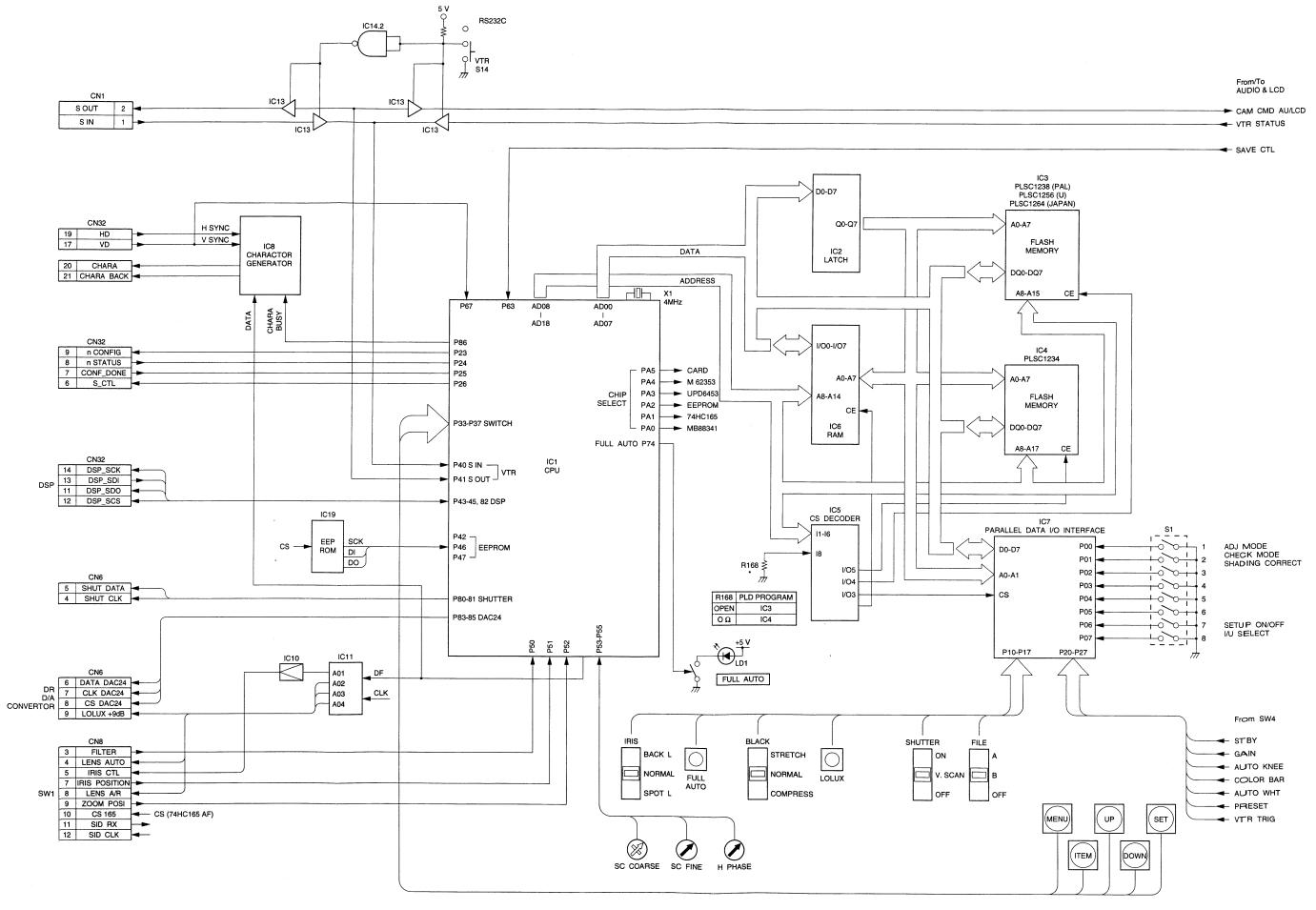


(DY-90U)

4.3 POWER SYSTEM BLOCK DIAGRAM

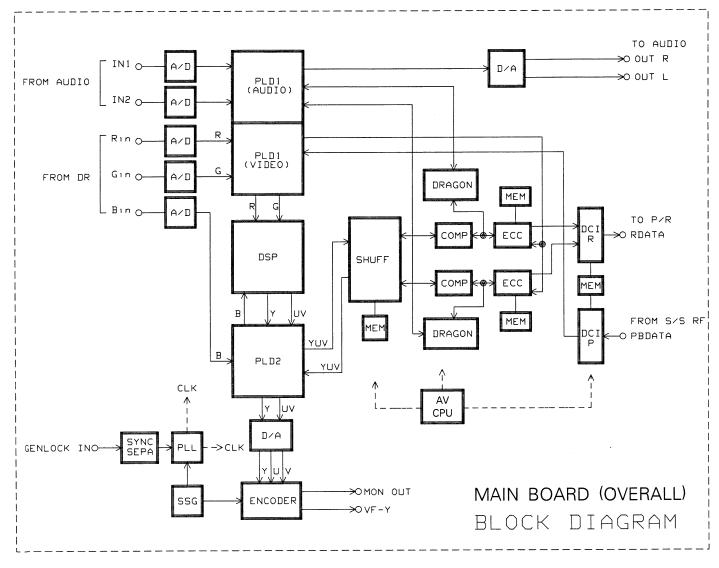


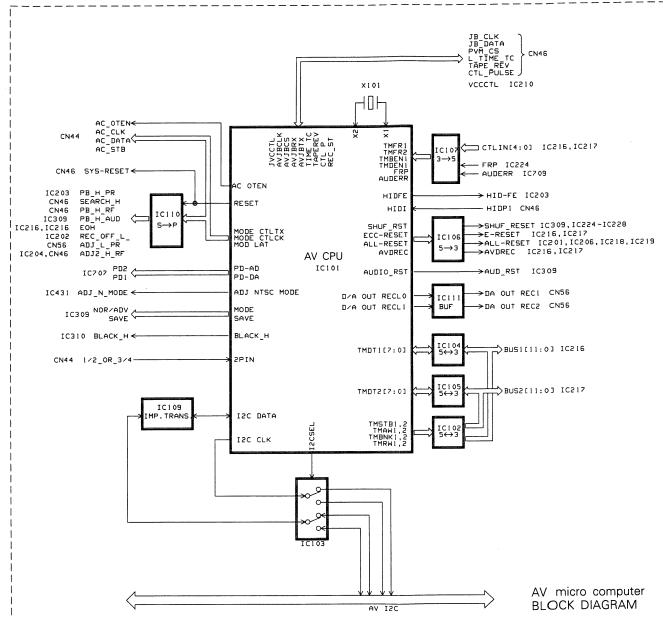


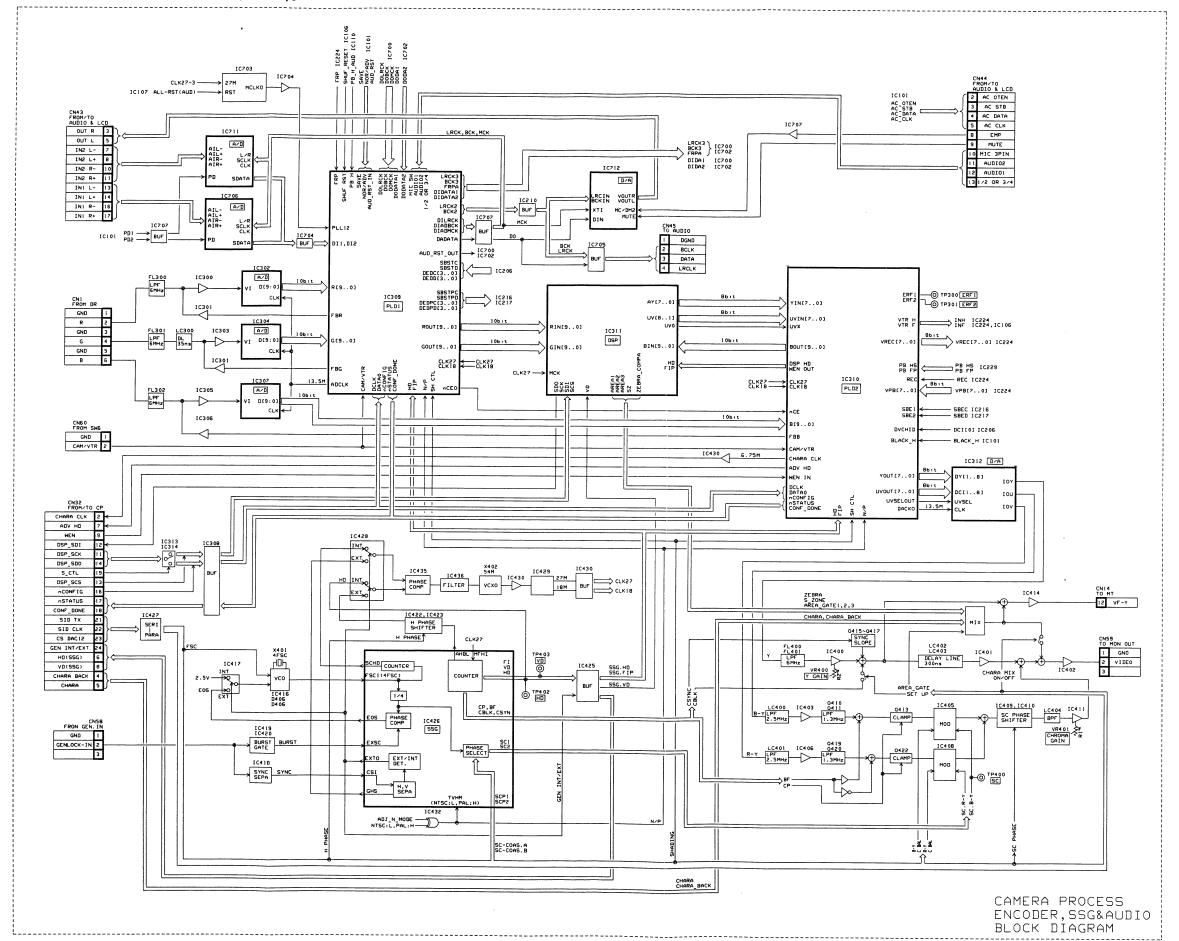


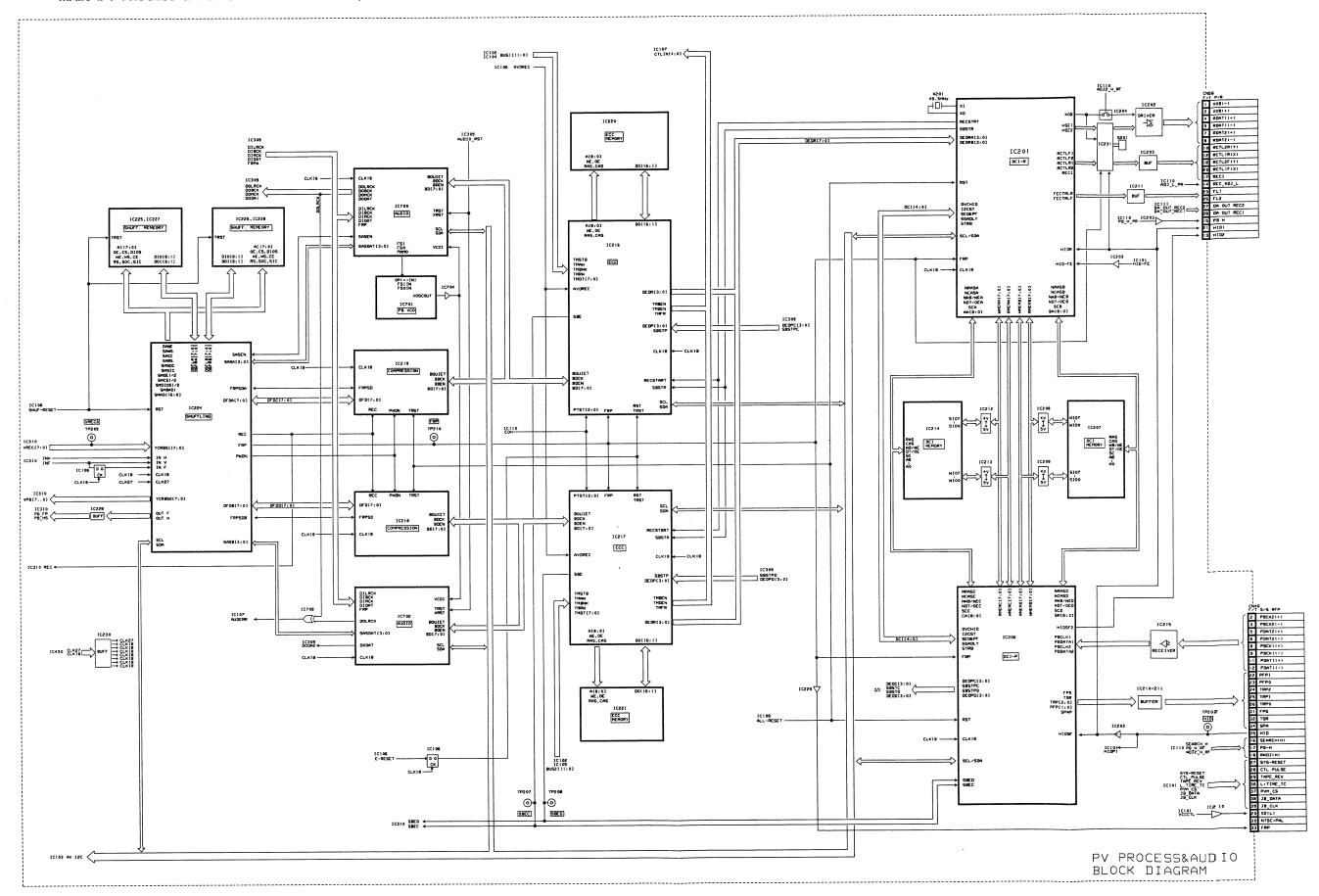
4.6 MAIN BLOCK DIAGRAM

- MAIN BOARD (OVERALL) & AV U-COM BLOCK DIAGRAM 1/3 -

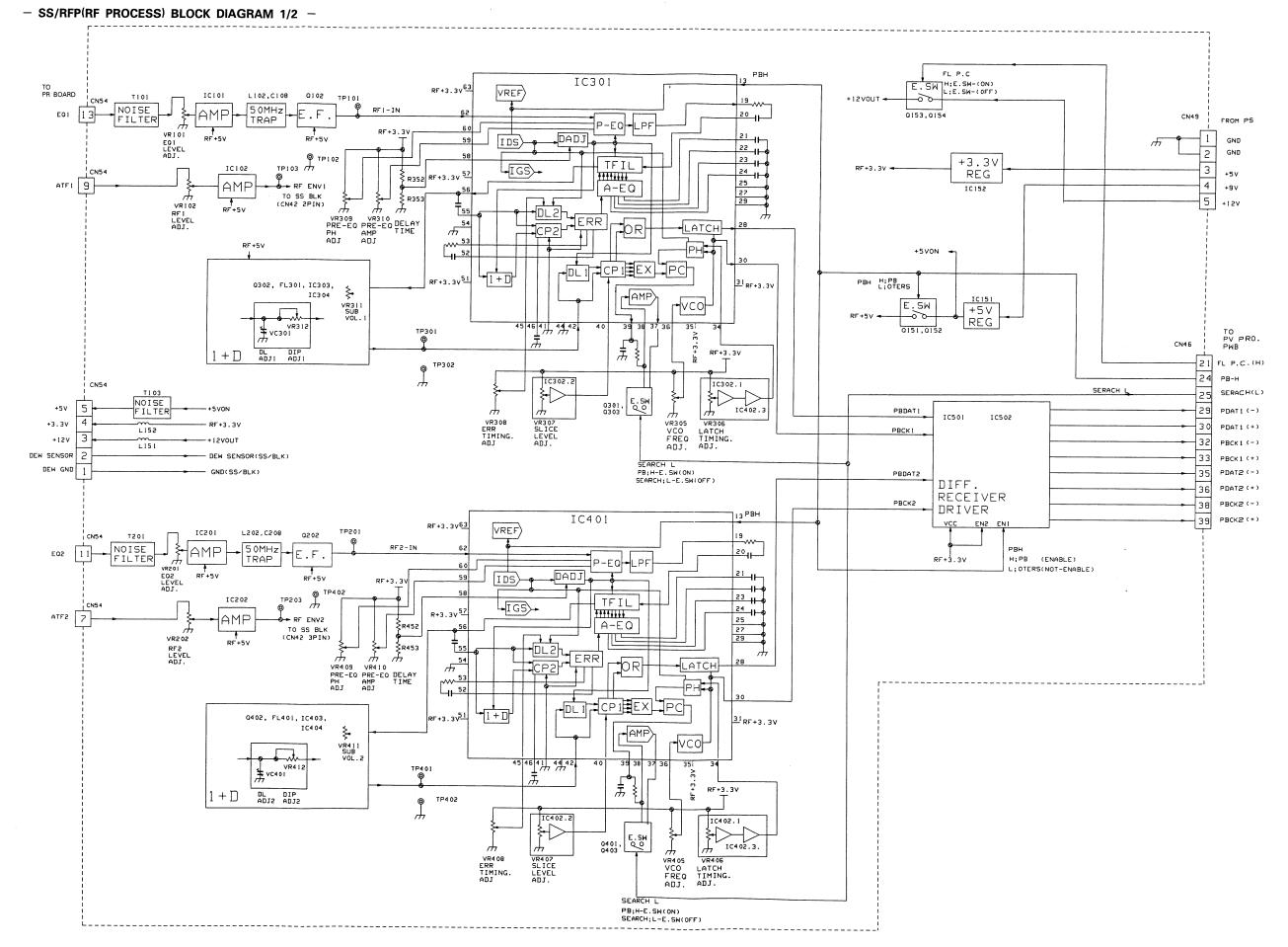


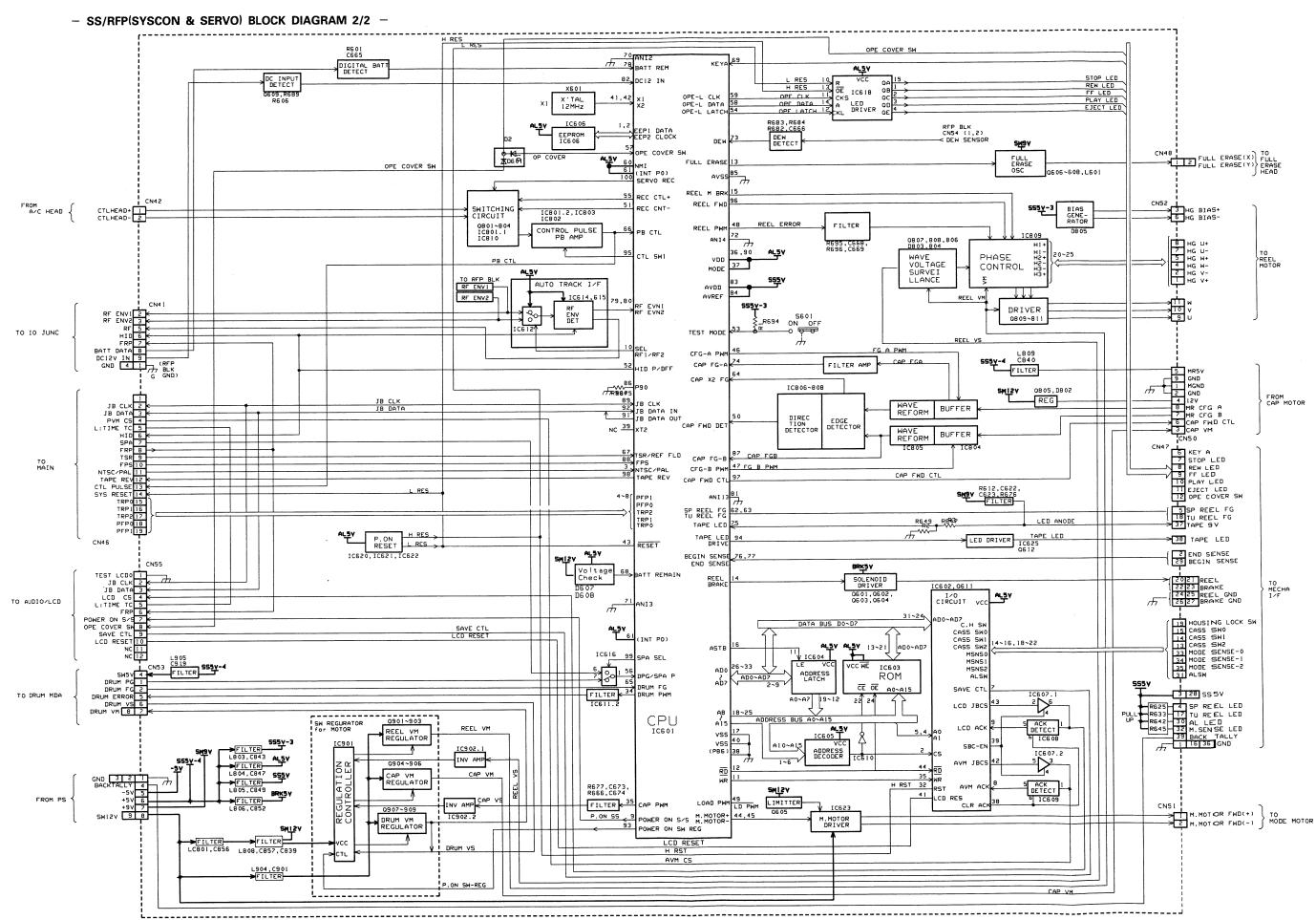






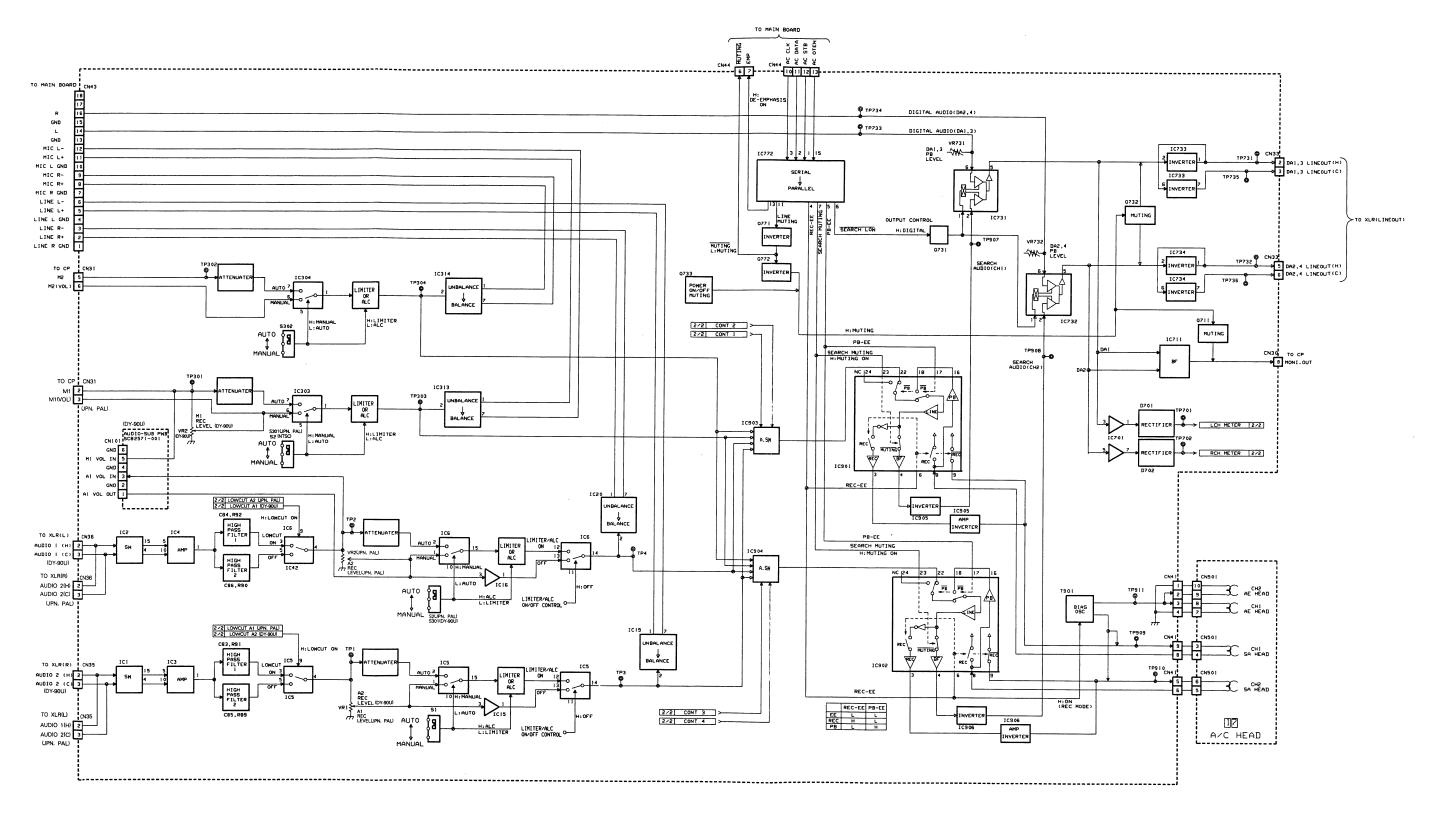
4.7 SS/RFP BLOCK DIAGRAM



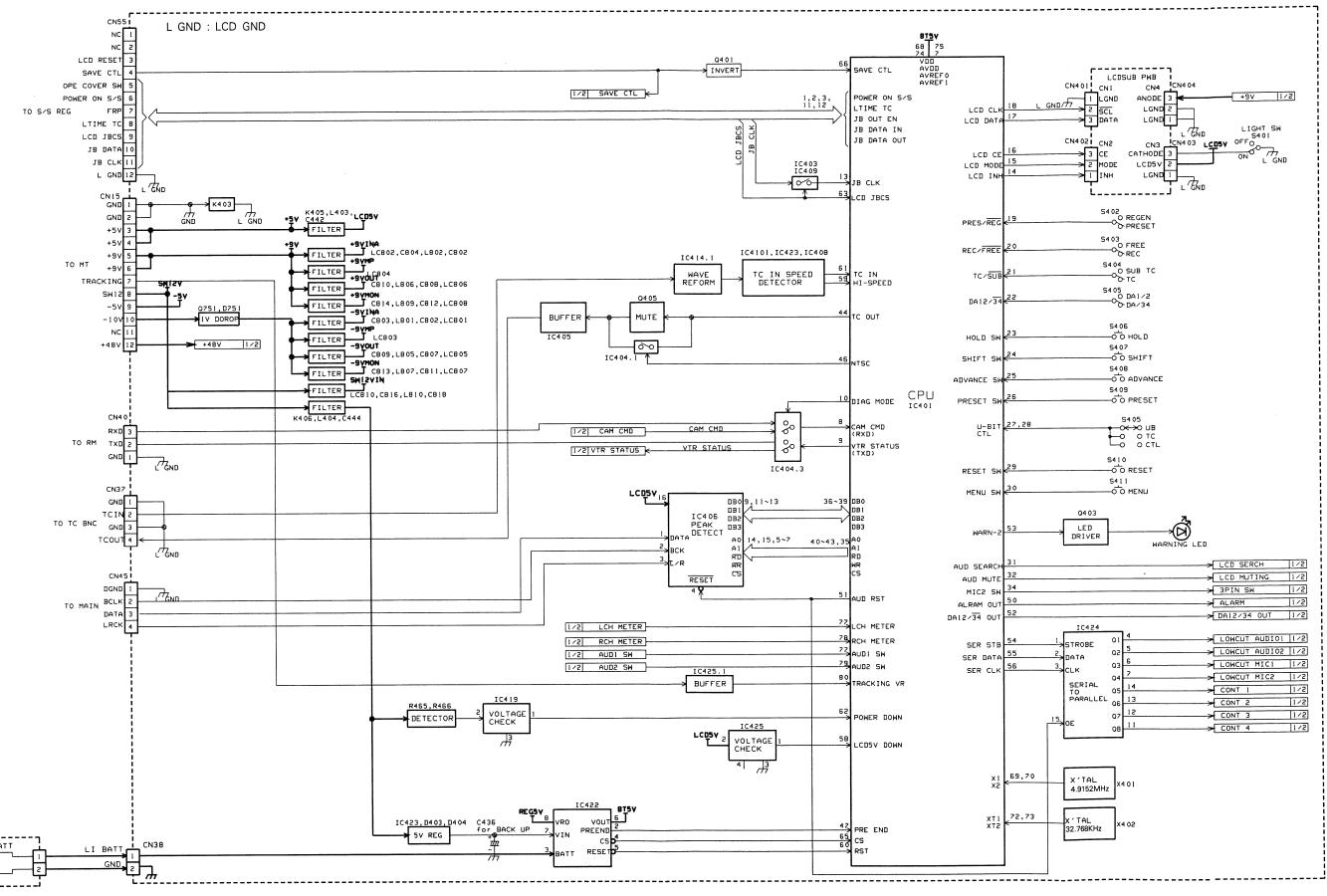


4.8 AUDIO & LCD BLOCK DIAGRAM

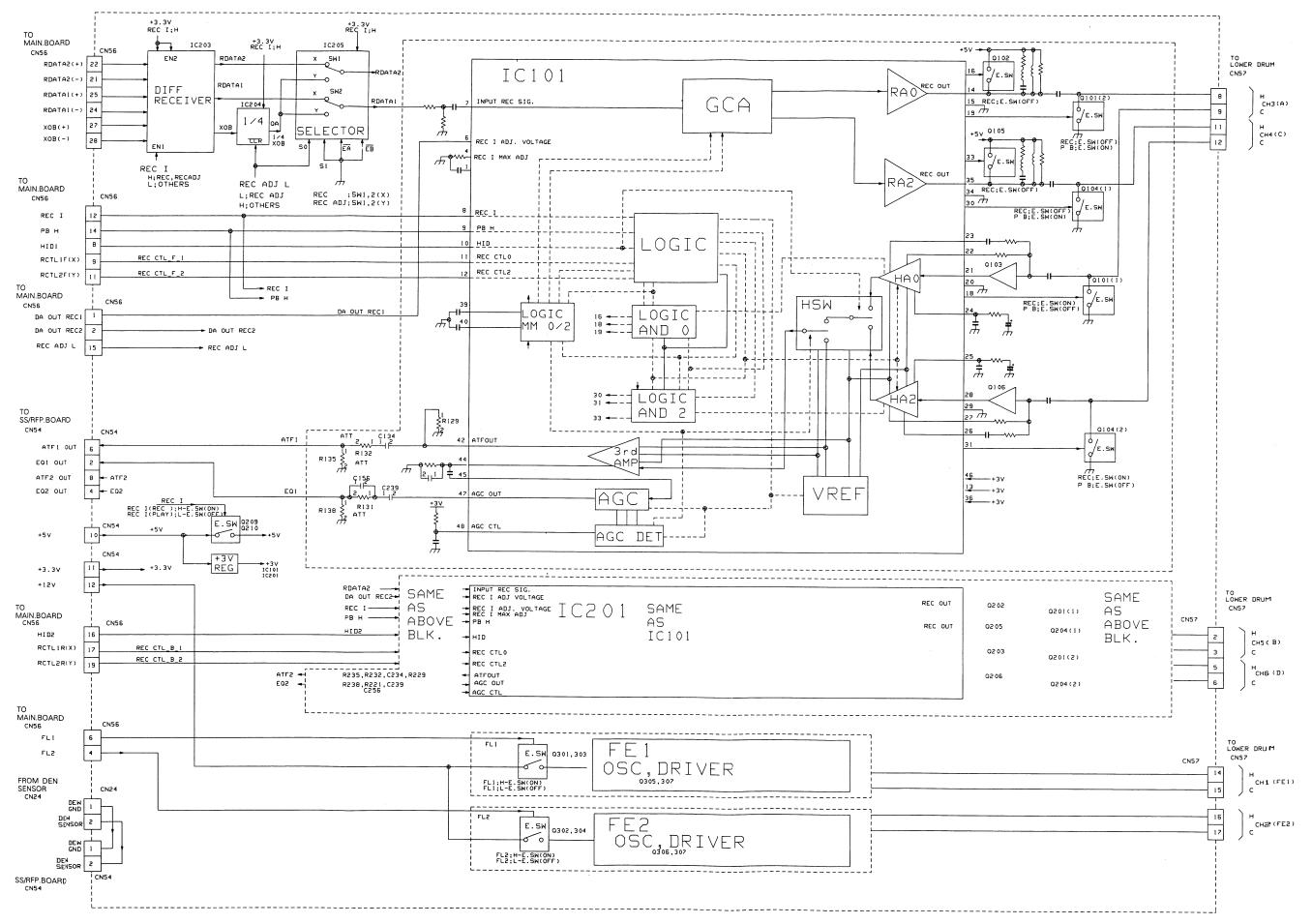
- AUDIO & LCD BLOCK DIAGRAM 1/2 -

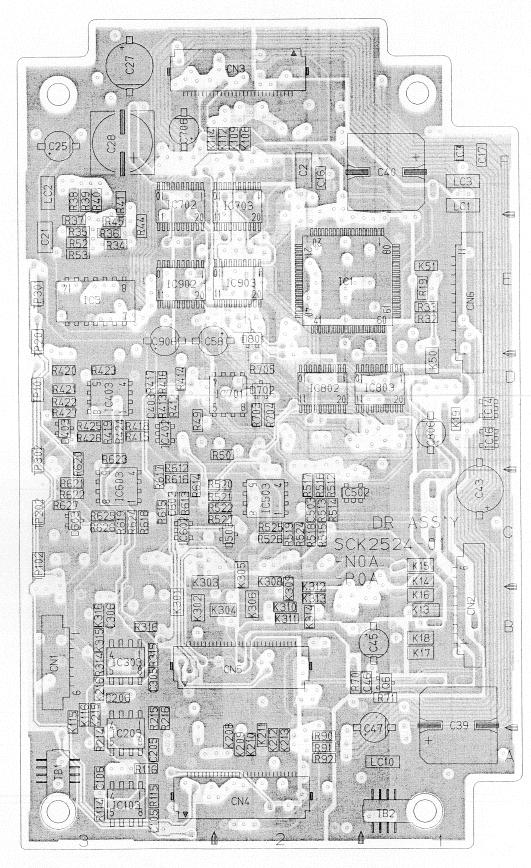


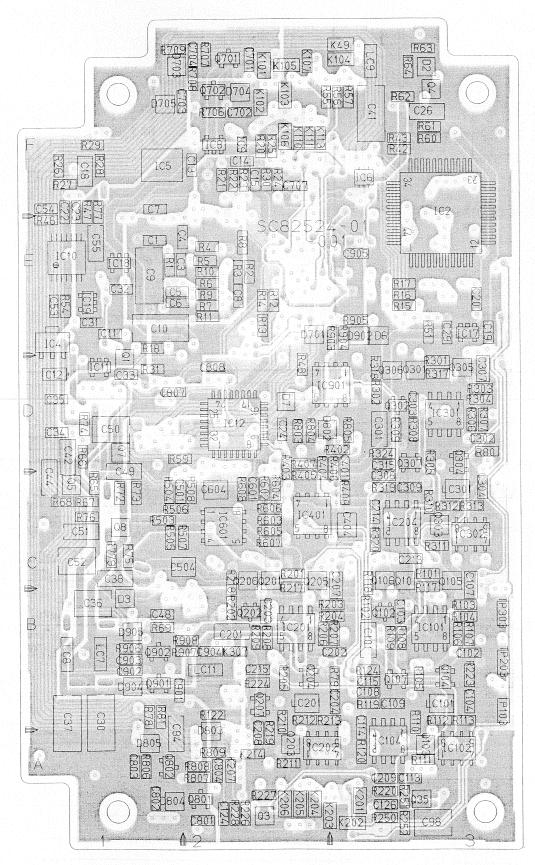
- AUDIO & LCD BLOCK DIAGRAM 2/2 -

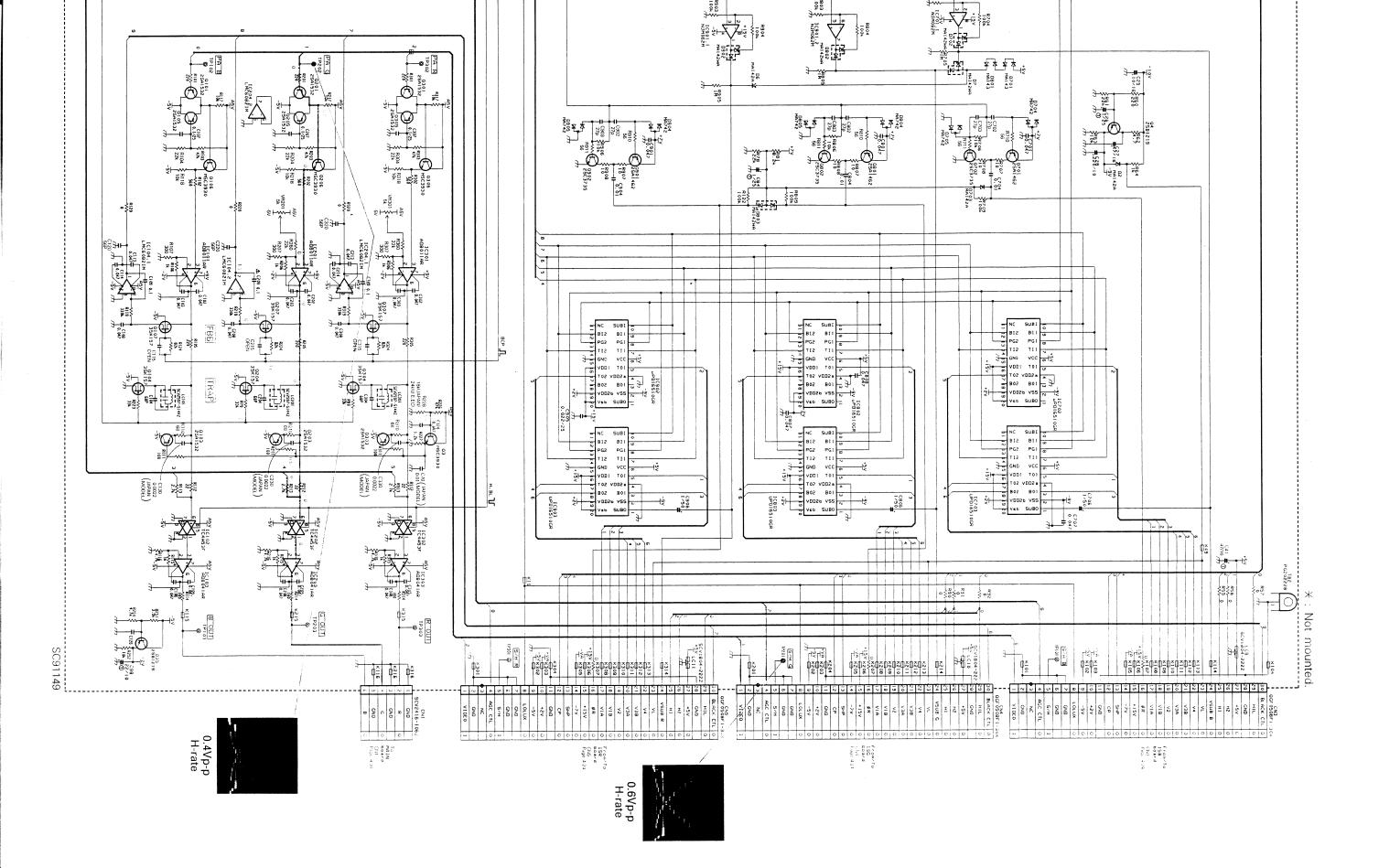


4.9 PR BLOCK DIAGRAM









B-1B

B-1B

B-1B

D2 D3 D6 D7

R64

R65

R66 R67

R68

R806

R807 R808

R809

R903 R904

B-2A B-2A

B-2A B-2D B-2D

¥210

¥211

K212

¥213

K214

B-2B **K**215 B-2A **K**216

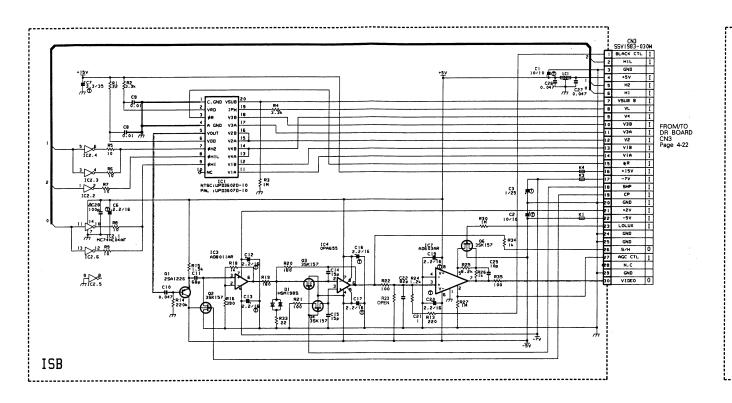
A-2A

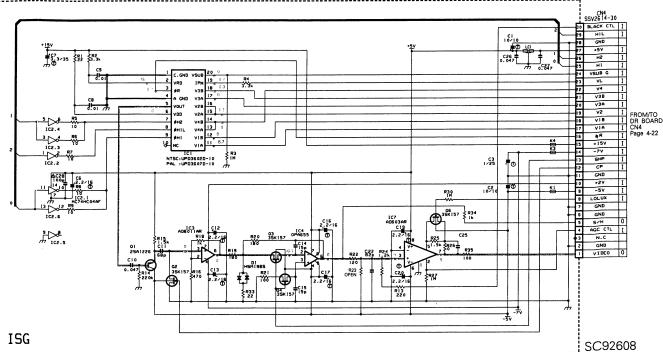
A-2A

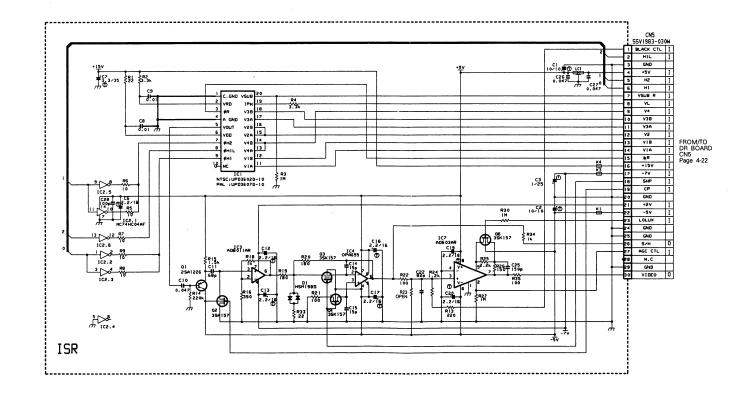
A-2A

B-2A A-3A

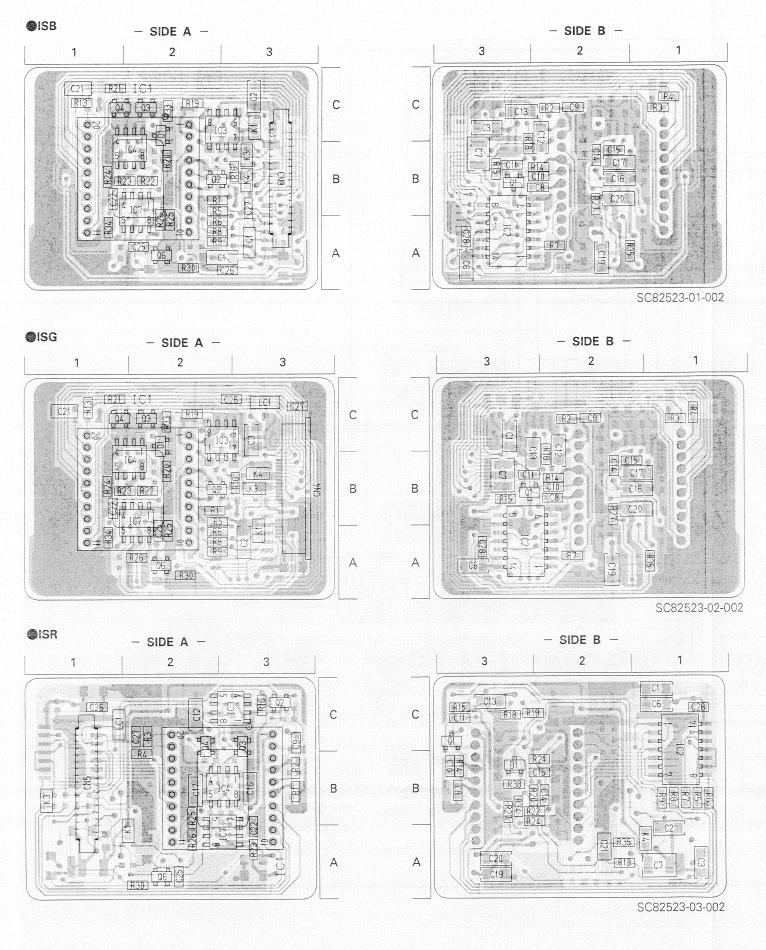
4.13 ISB/ISG/ISR BOARD SCHEMATIC DIAGRAM 02/03/04







4.14 ISB/ISG/ISR CIRCUIT BOARDS



ADDRESS TABEL OF BOARD PARTS

Eac	h addres	ss may	have ar	n addre	ss error	by one	intervai.							
A-1C														
Side	• <u> </u>	<u></u> х	axis axis											
IC1	A-2B	R6	A-2A	R33	A-2C	C19	B-2A							
IC2	B-3A	R7	B-2A	R34	A-1A	C20	B-2B							
IC3	A-2C	R8	A-2A	R35	B-1A	C21	A-1C							
IC4	A-2B	R9	A-2A			C22	A-1B							
IC7	A-2B	R13	A-1C	C1	A-2A	C25	A-2A							
		R14	B-2B	C2	A-3C	C26	A-3A							
Q1	B-3B	R15	B-3B	C3	B-3C	C27	A-3B							
Q2	A-2B	R16	A-3B	C6	В-ЗА	C28	В-ЗА							
Q3	A-2C	R18	B-2B	C7	B-3B									
Q4	A-1C	R19	A-2C	C8	B-2B	CN3	A-3B							
Q6	A-2A	R20	A-2B	C9	B-2C									
		R21	A-1C	C10	B-2B	LC1	A-3A							
D1	A-2C	R22	A-2B	C11	B-3B									
		R23	A-2B	C12	B-2C	K1	A-3C							
R1	A-2B	R24	A-1B	C13	B-3C	K3	A-3B							
R2	B-2C	R25	A-2A	C14	B-2B	K4	A-3B							
R3	B-1C	R26	A-2A	C15	B-2B									
R4	B-1C	R27	B-2B	C16	B-2B									
R5	A-2B	R30	A-2A	C17	B-2B	1								

ADDRESS TABEL OF BOARD PARTS

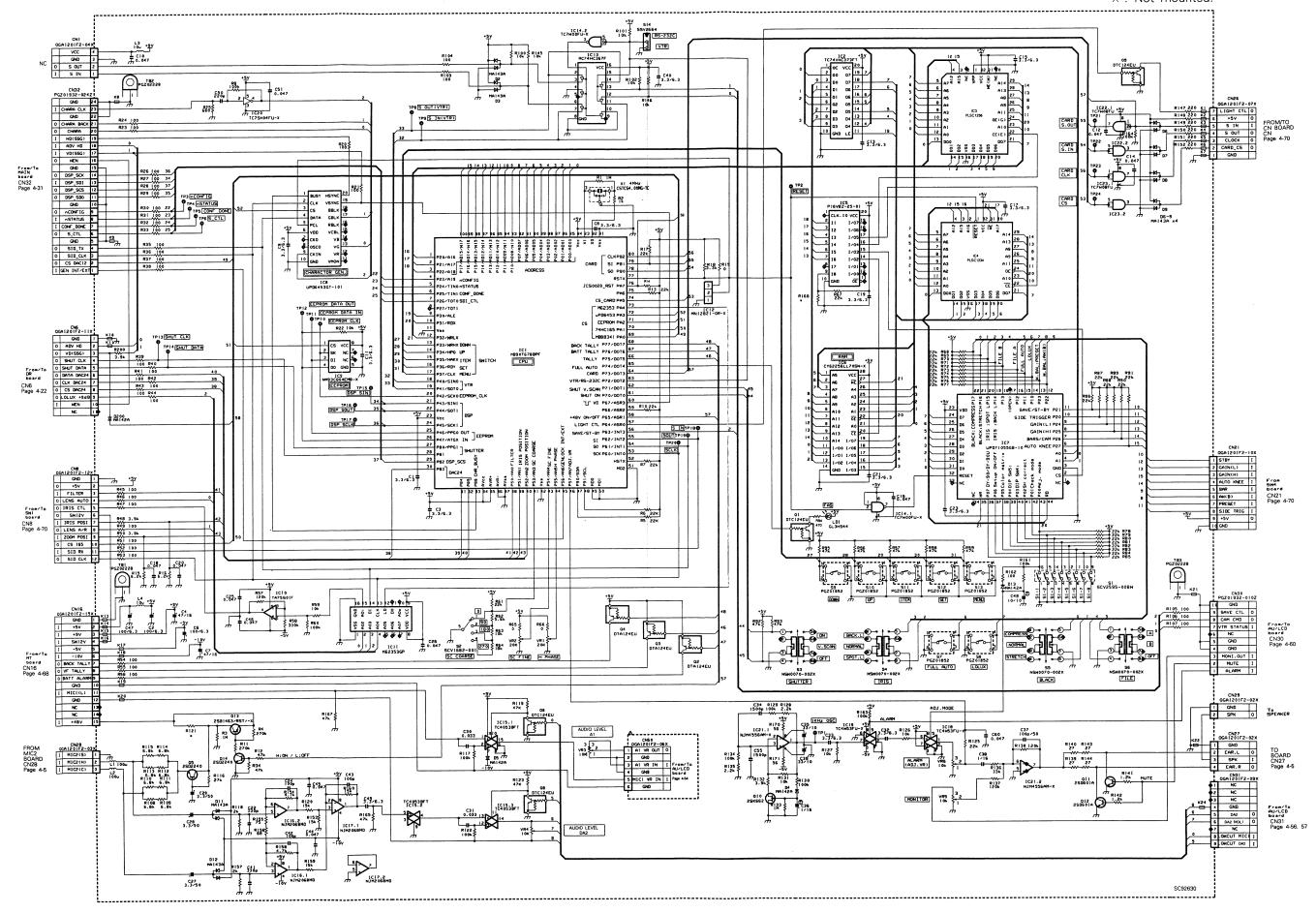
Each address may have an address error by one interval.

Lacii	auures	ss may	nave a	i dadici	36 01101	by one	11110111011
	A-10	7					
Side		LY	axis				
		——X	axis				
IC1	A-2B	R6	A-2A	R33	A-2C	C19	B-2A
IC2	В-ЗА	R7	B-2A	R34	A-1A	C20	B-2B
IC3	A-2C	R8	A-2A	R35	B-1A	C21	A-1C
IC4	A-2B	R9	A-2A			C22	A-1B
IC7	A-2B	R13	A-1C	C1	B-3C	C25	A-2A
		R14	B-2B	C2	A-3A	C26	A-2C
Q1	B-2B	R15	B-3B	C3	A-3C	C27	A-3C
Q2	A-2B	R16	A-2B	C6	В-ЗА	C28	B-3A
Q3	A-2C	R18	B-2B	C7	B-3B		
Q4	A-1C	R19	A-2C	C8	B-2B	CN4	A-3B
Q6	A-2A	R20	A-2B	C9	B-2C		
		R21	A-1C	C10	B-2B	LC1	A-3C
D1	A-2C	R22	A-2B	C11	B-3B		
		-R23	A-1B	C12	B-2C	K1	A-3A
R1	A-2B	R24	A-1B	C13	B-2B	K3	A-3B
R2	B-2C	R25	A-2A	C14	B-2B	K4	A-3B
R3	B-1C	R26	A-2A	C15	B-2B		
R4	B-1C	R27	B-2B	C16	B-2B		
R5	A-2B	R30	A-2A	C17	B-2B		
		•					

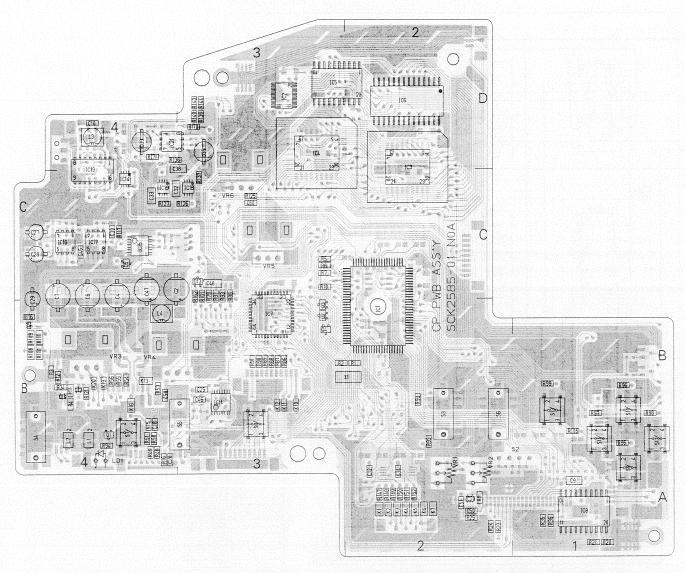
ADDRESS TABEL OF BOARD PARTS

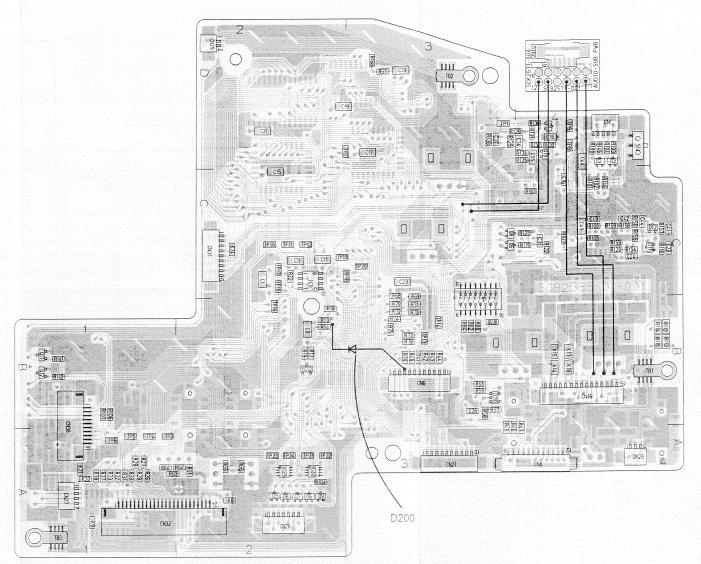
Each address may have an address error by one interval.

	Lacii	audies	Sinay	nave an	addic	33 01101	by one	11110110
	Side	A-10	у					
			X	axis				
10	C1	A-2B	R6	B-1B	R33	B-3B	C19	В-ЗА
- (C2	B-1C	R7	B-1B	R34	B-3B	C20	В-ЗА
](C3	A-3C	R8	B-1B	R35	B-2A	C21	B-2A
- 10	C4	A-3B	R9	B-1B			C22	A-3A
10	C7	A-2A	R13	B-2A	C1	B-1C	C25	A-2A
			R14	B-3B	C2	B-1A	C26	A-1C
(21	B-3C	R15	B-3C	C3	B-1A	C27	A-2C
(22	A-3C	R16	A-3C	C6	B-1C	C28	B-1C
(23	A-3C	R18	B-3C	C7	B-1A		
(24	A-2C	R19	B-2C	C8	B-3B	CN5	A-1B
(26	A-2A	R20	B-2B	C9	A-3C		
			R21	B-2B	C10	B-3B	LC1	A-1C
Ε)1	B-3B	R22	B-2B	C11	B-3C		
			R23	А-ЗА	C12	A-2C	K1	A-2A
F	31	A-3B	R24	B-2B	C13	B-3C	K3	A-1B
F	32	A-3B	R25	A-2B	C14	B-2B	K4	B-1A
F	3	A-2C	R26	A-2A	C15	B-2B		
F	34	A-2B	R27	B-3B	C16	A-3B		
F	₹5	B-1B	R30	A-2A	C17	A-2B		







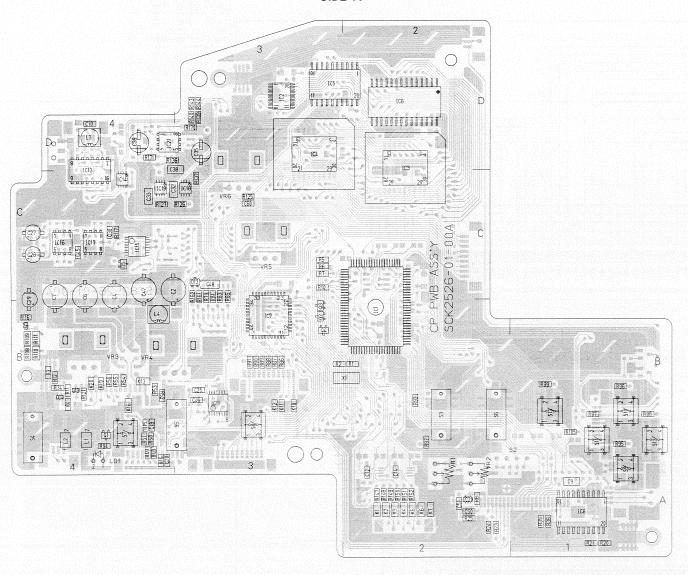


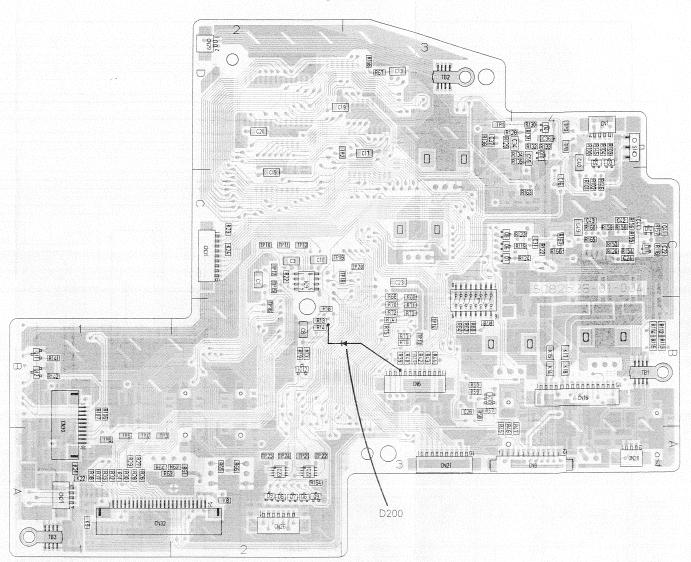
@ ADDRESS TABEL OF BOARD PARTS

	h addres				s error	by one	interval																								
	A-10)																													
Side		Y	axis																												
	L		axis																												
IC1	A-2B	Q1	A-4A	D12	B-4C	R22	B-2C	R45	B-3A	R68	B-3B	R91	A-3B	B114	B-4B	l R138	B-3D	R161	A-3B	C8	B-2B	C31	B-4C	l L1	A-4A	TP20	B-3C	K5	A-2A	S1	B-3B
IC2	A-3D	Q2	A-3B	D13	A-3C	R23	A-2A	R46	B-3A	R69	B-3B	R92	A-2A	R115	B-4B	R139	A-3D	R162	A-3B	C9	A-1A	C32	A-4C	L2	A-4A	TP21	B-2A	K6	A-2A	S2	A-2A
103	A-2C	Q3	A-3B	D.0		R24	A-2A	R47	B-4A	R70	B-3B	R93	A-2B	R116	A-4B	R140	A-3D	R163	B-4C	C10	A-4D	C33	A-4C	L3	A-4D	TP22	B-2A	K7	A-2A	S3	A-2B
IC4	A-3C	Q4	A-3B	R1	A-2B	R25	A-2A	R48	A-4A	R71	B-3B	R94	A-4A	R117	A-4C	R141	B-1B	R164	B-2A	C11	B-2C	C34	B-4D	L4	A-4B	TP23	B-2A	K8	B-2A	S4	A-4A
IC5	A-2D	Q5	A-4B	R2	A-3B	R26	B-1A	R49	A-4A	R72	B-3B	R95	A-1A	R118	B-4C	R142	B-1B	R165	B-4C	C12	A-2A	C35	A-3D			TP24	B-2A	K9	B-1A	S5	A-3A
IC6	A-2D	Q6	B-3C	R3	A-4B	R27	B-1A	R50	A-4A	R73	B-3B	R96	A-1B	R119	B-4C	R143	A-3D	R167	B-4C	C13	B-3D	C36	B-4D	TP1	B-3D			K10	A-3B	S6	A-2B
IC7	A-3B	Q8	B-3C	R4	A-4B	R28	B-1A	R51	A-4A	R74	B-3B	R97	A-1B	R120	B-4C	R144	A-3D	R168	B-3D	C14	A-2A	C37	B-3D	TP2	B-2C	CN1	B-4D	K11	A-3B	S7	A-4A
IC8	A-1A	Q9	B-2A	R5	A-3C	R29	B-1A	R52	A-4B	R75	B-3B	R98	A-1B	R121	A-4B	R145	B-4D	R170	A-3D	C15	B-2C	C38	A-4C	TP3	B-1A	CN6	B-3B	K12	A-3B	S8	A-3A
IC9	B-2C	Q10	B-4C	R6	A-3C	R30	B-1A	R53	A-4B	R76	B-3B	R99	A-1B	R122	B-4C	R146	B-4C	R171	A-4C	C16	B-4C	C39	A-4D	TP4	B-1A	CN8	B-4A	K13	A-4B	S9	A-1A
IC10	B-3B	Q11	B-1B	R7	A-3C	R31	B-1A	R54	A-4B	R77	B-3B	R100	B-4D	R123	B-4C	R147	A-2A			C17	B-3C	C40	B-4C	TP5	B-1A	CN16	B-4B	K14	B-4B	S10	A-1B
IC11	A-3B	Q12	B-1B	R8	A-2A	R32	B-1A	R55	A-4B	R78	B-3B	R101	B-4C	R125	A-3C	R148	A-2A	VR1	A-2A	C18	A-4A	C41	B-4C	TP6	B-1A	CN21	B-3A	K15	B-4B	S11	A-1A
IC12	B-2B	Q13	A-4B	R10	A-3C	R33	B-1A	R56	A-4B	R79	A-3B	R102	B-4C	R126	A-3C	R149	A-2A	VR2	A-2A	C19	B-2D	C42	B-4C	TP8	B-4D	CN26	B-2A	K16	A-4B	S12	A-1A
IC13	A-4C	Q14	A-4B	R11	A-4B	R34	A-4B	R57	B-3B	R80	B-3B	R103	B-4D	R127	A-4C	R150	A-2A	VR3	A-4B	C20	A-4A	C43	B-4C	TP9	B-4D	CN27	B-1A	K17	B-4B	S13	A-1B
IC14	A-4C			R12	A-4B	R35	A-1A	R58	B-3B	R81	A-3B	R104	B-4D	R128	B-4D	R151	A-2A	VR4	A-4B	C21	B-2D	C44	B-4C	TP10	B-2C	CN28	B-4A	K18	B-4B	S14	B-4D
IC15	A-4C	D2	B-4C	R13	B-2B	R36	A-1A	R59	B-3B	R82	B-3B	R105	A-1A	R129	B-3D	R152	A-2A	VR5	A-3C	C22	B-4C	C45	A-4C	TP11	B-2C	CN29	B-2D	K19	A-4B	1	
IC16	A-4C	D3	B-4C	R14	B-2B	R37	B-1A	R60	B-3B	R83	A-3B	R106	B-1B	R130	B-4D	R153	B-4C	VR6	A-3C	C23	B-3C	C46	A-3B	TP12	B-2C	CN30	B-1A	K20	A-4B	X1	A-2B
IC17	A-4C	D4	B-4D	R15	A-4A	R38	B-1A	R61	B-2A	R84	B-3B	R107	B-1B	R131	B-4D	R154	B-4C		D 00	C24	B-4C	C47	A-4B	TP13	B-3B	CN31	B-2C	K21	B-1A	1.04	0.40
IC18	A-3C	D5	A-4C	R16	A-4A	R39	B-3B	R62	B-2A	R85	A-3B	R108	A-4B	R132	B-4D	R155	B-4C	C1	B-2C	C25	A-3B	C48	A-3C	TP14	B-3B	CN32	B-1A	K22 K24	B-1A B-2C	LD1	A-4A
IC19	A-4C	D6	B-2A	R17	B-2B	R40	B-3B	R63	B-1A	R86	A-3B	R109	A-4B	R133	B-4D	R156	B-4C	C2	A-4B	C26	B-3B	C49 C50	B-4C A-2A	TP15	B-2C B-2B	V-1	A-2A	N24	D-20		
IC20		D7	B-2A	R18	B-2B	R41	B-3B	R64	B-1A	R87	A-3B	R110	A-4B	R134	B-4C	R157	B-4C B-4C	C3	B-2C	C27	A-4C A-4C	C51	A-2A A-2A	TP17	B-2C	K1 K2	A-2A A-2A	TB1	B-4B		
IC21	A-4D	D8	B-2A	R19	B-2B	R42	B-3B	R65	B-2A	R88	A-3B	R111	A-4B B-4B	R135	B-4C A-4C	R158	B-4C B-4C	C4 C6	A-4B A-4B	C29	A-4B	C55	B-4C	TP18	B-3C	K3	A-2A A-2A	TB2	B-3D	1	
IC22	B-2A	D9	B-2A	R20	A-1A	R43	B-3B	R66	B-2A	R89	A-3B	R112	B-4B	R137	A-4C A-3C	R160	B-4C	C7	A-4B	C30	A-4C	C60	A-3C	TP19	B-3C	KA	A-2A	TB3	B-1A		
IC23	B-2A	D11	B-4C	R21	A-1A	R44	B-3B	R67	B-3D	R90	A-3B	R113	D-4D	1013/	H-SU	100	D-40	01	M-4D	1000	M-40	1000	A-30	11113	D-20	1,74	V-74	100	D-17		

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- SIDE A -





ADDRESS TABEL OF BOARD PARTS

Each address may have an address error by one interval.

Sid		: Y X	axis axis																														
101	A-2B	Q1	A-4A	D11	B-4C	R21	A-1A	R44	B-3B	R67	B-3D	R90	A-3B	R113	B-4B	R136	A-4C	R159	B-4C	C4	A-4B	C28	A-4C	C51	A-2A	TP16	B-2B	K1	A-2A	K24	B-2C	LD1	A-4A
102	A-3D	Q2	A-3B	D12	B-4C	R22		R45	B-4A	R68	B-3B	R91	A-3B	R114	B-4B	R137	A-3C	R160	B-4C	C6	A-4B	C29	A-4B	C55	B-4C	TP17	B-2C	K2	A-2A				
103		Q3	A-3B	D13		R23		R46	B-4A	R69	B-3B	R92	A-2A	R115	B-4B	R138	B-3D	R161	A-3B	C7	A-4B	C30	A-4C	C60	A-3C	TP18	B-3C	K3	A-2A	TB1	B-4B		
104	A-3C		A-3B			R24		R47	B-4A	R70	B-3B	R93	A-2B	R116	A-4B	R139	A-3D	R162	A-3B	C8	B-2B	C31	B-4C			TP19	B-3C	K4	A-2A	TB2	B-3D		
105		Q5		R1		R25		R48	A-4A	R71	B-3B	R94	A-4A	R117		R140	A-3D	R163	B-4C	C9	A-1A	C32	A-4C	L1	A-4A	TP20	B-3C	K5	A-2A	TB3	B-1A		
106		Q6	B-4C	R2	A-3B	R26		R49	A-4A	R72	B-3B	R95	A-1A	R118	B-4C	R141	B-1B	R164	B-2A	C10	A-4D	C33	A-4C	L2	A-4A	TP21	B-2A	K6	A-2A				
IC7		Q7	B-4C	R3		R27		R50	A-4A	R73	B-3B	R96	A-1B	R119	B-4C	R142	B-1B	R165	B-4C	C11	B-2C	C34		L3	A-4D	TP22	B-2A	K7	A-2A	S1	B-3B		
108	A-1A	Q8	B-4C	R4		R28		R51		R74	B-3B	R97	A-1B	R120		R143	A-3D	R166	B-4C	C12	A-2A	C35		L4	A-4B	TP23	B-2A	K8	B-2A	S2	A-2A		
109	B-2C	Q9	B-2A	R5	A-3C	R29		R52	A-4B	R75	B-3B	R98	A-1B	R121		R144	A-3D	R167	B-4C	C13	B-3D	C36	B-4D			TP24	B-2A	K9	B-1A	S3	A-2B		
1010	B-3B	Q10	B-4C	R6		R30		R53	A-4B	R76	B-3B	R99	A-1B	R122	B-4C	R145	B-4D	R168	B-3D	C14	A-2A	C37	B-3D	TP1	B-4D			K10	A-3B	S4	A-4A		
IC11	A-3B	Q11	B-1B	R7		R31		R54	A-4B	R77	B-3B	R100	B-4D	R123			B-4C	R170	A-3D	C15	B-2C	C38	A-4C	TP2	B-3C	CN1	B-4D	K11	A-3B	S5	A-4A		
1012	B-2B	Q12	B-1B	R8	A-2A	R32		R55	A-4B	R78	B-3B	R101	B-4C	R124	B-4C	R147	A-2A	H1/1	A-4C	C16	B-4C	C39	A-4D	TP3	B-2A	CN6	B-3B	K12	A-3B	S6	A-2B		
IC13	A-4C	Q13		R10	A-3C	R33		R56		R79	A-3B	R102	B-4C	R125	A-3C	R148	A-2A			C17	B-3C	C40	B-4C	TP4	B-1A	CN8	B-4A	K13	A-4B	S7	A-4A	(Constitution)	
IC14	A-4C	Q14	A-4B	R11	A-4B	R34		R57	B-3B	R80	B-3B	R103	B-4D	R126	A-4C	R149	A-2A	VR1	A-2A	C18	A-4A	C41	B-4C	TP5	B-1A	CN16	B-4B	K14	B-4B	S8	A-3A		
IC15	A-4C			R12	A-4B	R35		R58	B-3B	R81	A-3B	R104	B-4D	R127	A-4C	R150	A-2A	VR2	A-2A	C19	B-3D	C42	B-4C	TP6	B-1A	CN21	B-3A	K15	B-4B	S9	A-1A		
IC16	A-4C	D2	B-4C	R13	B-2B	R36		R59	B-3B	R82	B-3B	R105	A-1A	R128	B-4D	R151	A-2A	VR3	A-4B	C20	A-4A	C43	B-4C	TP8	B-4D	CN26	B-2A	K16	A-4B	S10	A-1B		
IC17	A-4C	D3		R14	B-2B	R37		R60	B-3B	R83	A-3B	R106	B-1B	R129	B-4D	R152	A-2A	VR4	A-4B	C21	B-2D	C44	B-4C	TP9	B-4D	CN27	B-1A	K17	B-4B	511	A-1A		
IC18		D4		R15	A-4A	R38		R61	B-2A	R84	B-3B	R107	B-1B	R130	B-4D	R153	B-4C	VR5	A-3C	C22	B-4C	C45	A-4C	TP10	B-2C	CN28	B-4A	K18	B-4B	512	A-1A		
IC19	A-4C	D5		R16	A-4A	R39		R62	B-2A	R85	A-3B	R108	A-4B	R131	B-4D	R154	B-4C	VR6	A-3C	C23	B-3C	C46	A-3B	TP11	B-2C	CN29	B-2D	K19	A-4B	513	A-1B		
1020	A-2A	D6	B-2A	R17	B-2B	R40		R63	B-2A	R86	A-3B	R109	A-4B	R132	B-4D	R155	B-4C	C1	D ac	C24	B-4C	C47	A-4B	TP12	B-2C	CN30	B-1A	K20	A-4B	S14	B-4D		
1021	A-4D	ט7	B-2A	R18	B-3B	R41		R64	B-2A	R87	A-3B	R110	A-4B	R133	B-4D	R156	B-4C	01	B-2C	C25	A-3B	C48	A-3C	TP13	B-3B	CN31	B-2C	K21	B-1A	V4	A 0D	1	
1022	B-2A	D8	B-2A	R19	B-2B	R42		R65	B-2A	R88	A-3B	R111	A-4B	R134	B-4C	R157	B-4C	02	A-4B	C26	B-3B	C49	B-4C	TD45	B-3B	CN32	B-2A	K22	B-1A	X1	A-3B		
IC23	B-2A	D9	B-2A	R20	A-1A	R43	B-3B	R66	B-2A	R89	A-3B	R112	B-4B	R135	B-4C	14108	B-4C	C3	B-2C	C27	A-4C	C50	A-2A	11715	B-2C	1		K23	B-2C			1	

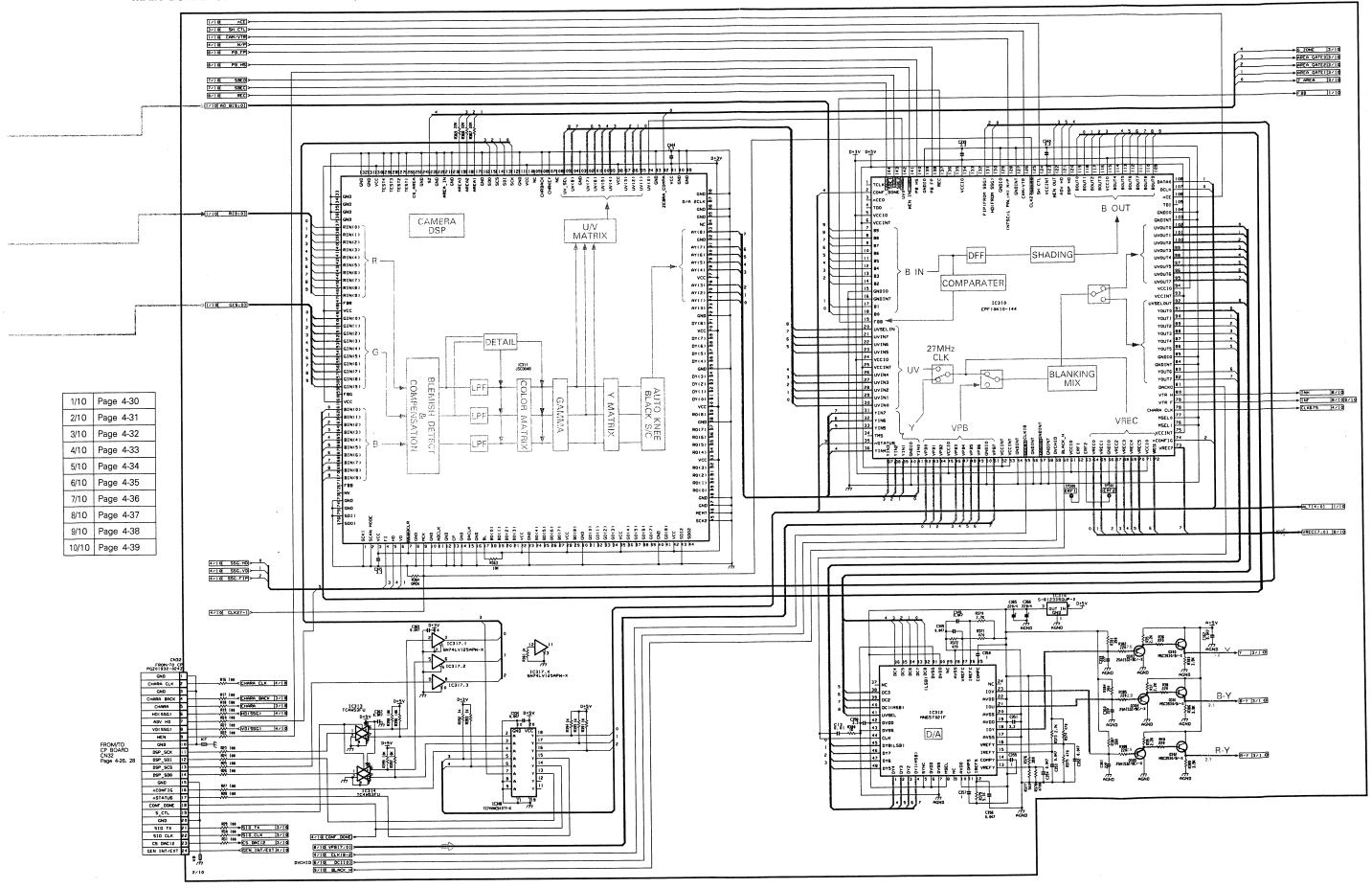
1/10 Page 4-30 4.17 MAIN BOARD SCHEMATIC DIAGRAM 06 Page 4-31 2/10 - MAIN BOARD SCHEMATIC DIAGRAM 1/10 -3/10 Page 4-32 4/10 Page 4-33 5/10 Page 4-34 9/10 SHUF RESET >-10/10 1/2 OR 3/4 >-10/10 AUDIO2 >-6/10 Page 4-35 7/10 Page 4-36 8/10 Page 4-37 9/10 Page 4-38 FRPA | 10/10 DIDA1 | 10/10 DIDA2 | 10/10 LRCK3 | 10/10 10/10 Page 4-39 → BCK3 [10/10] → MCK [10/10] → DO | 10/10 → CE | 2/10 → LRCK2 | 6/10 → BCK2 | 6/10 R(9:0) 2/10 DFF SHADING COMPARATER 0.9Vp-p H-rate SHADING JSns IL B GNDGND COMPARATER STA REDUCE G[9:0] 2/10 DE DPD [3:0] 2/10 SBSTPD 2/10 SBSTPC 2/10 DE DPC [3:0] 2/10 Bch CAM/VTR 2/10 <VF-Y 3/10 2/10 FBB

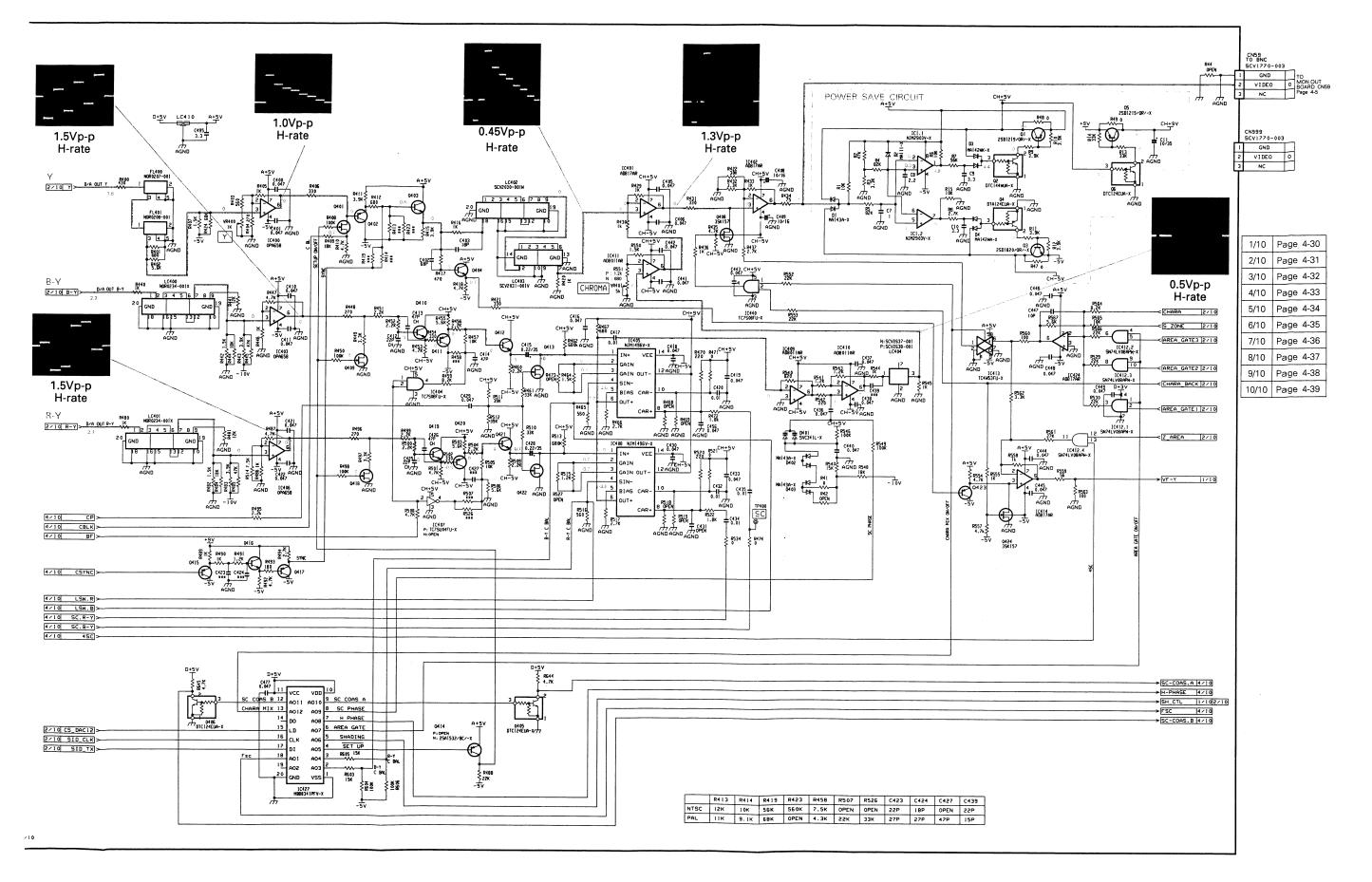
SC92615

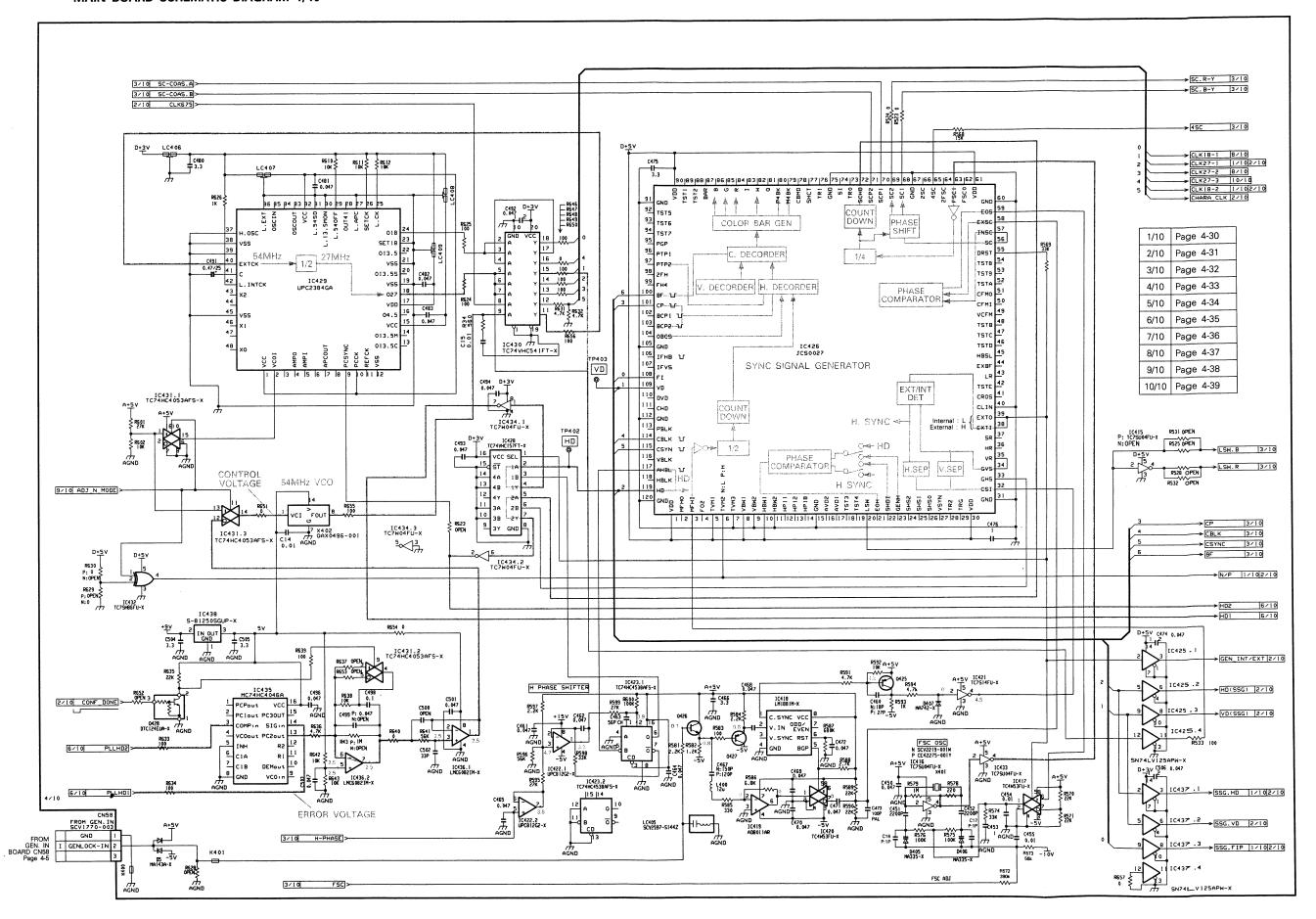
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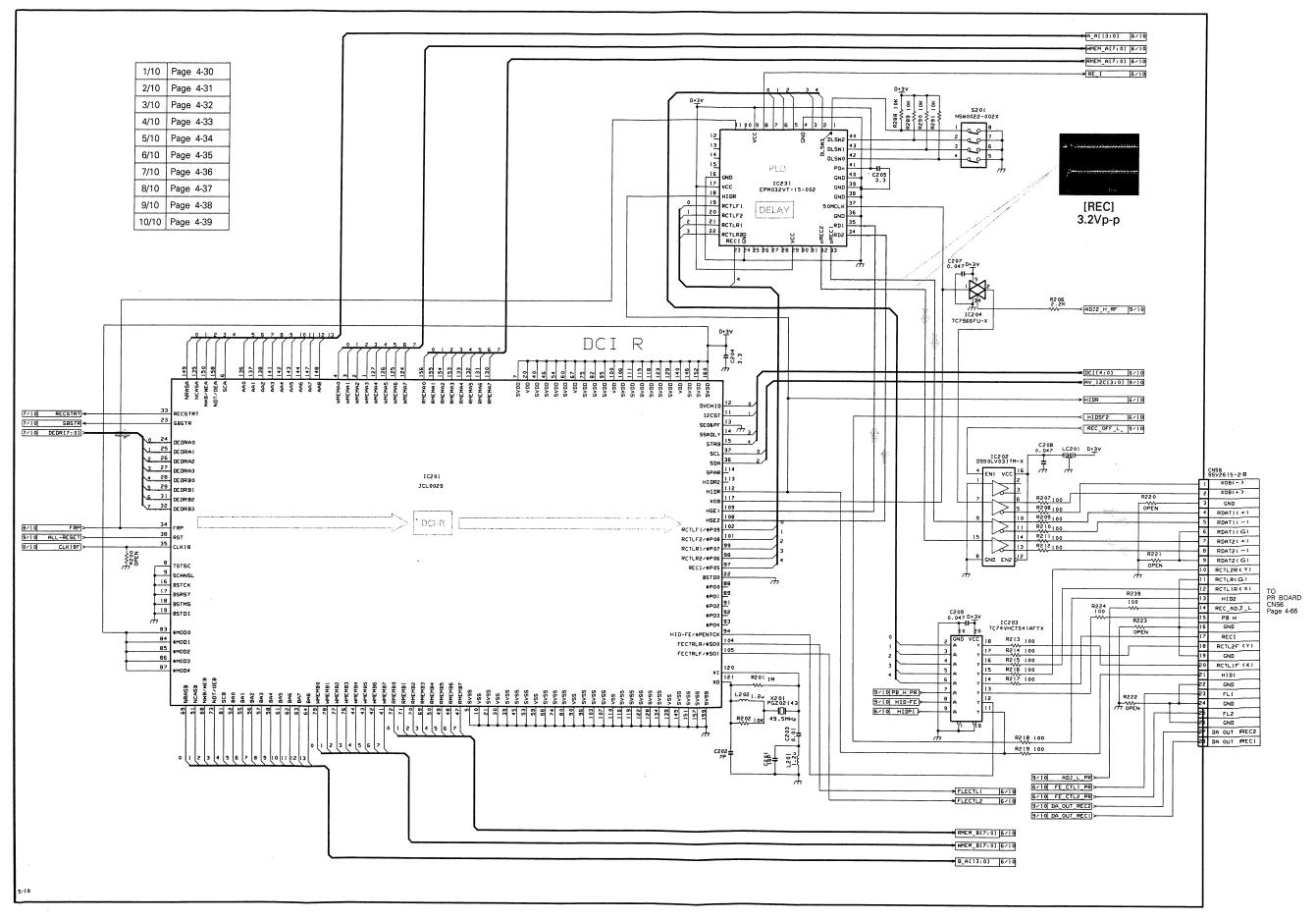
6/10 DEDC[3:0]>

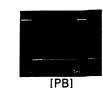
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4/10 SSG.HD>
3/10 SH_CTL>
4/10 CLK27-1>
4/10 N/P>

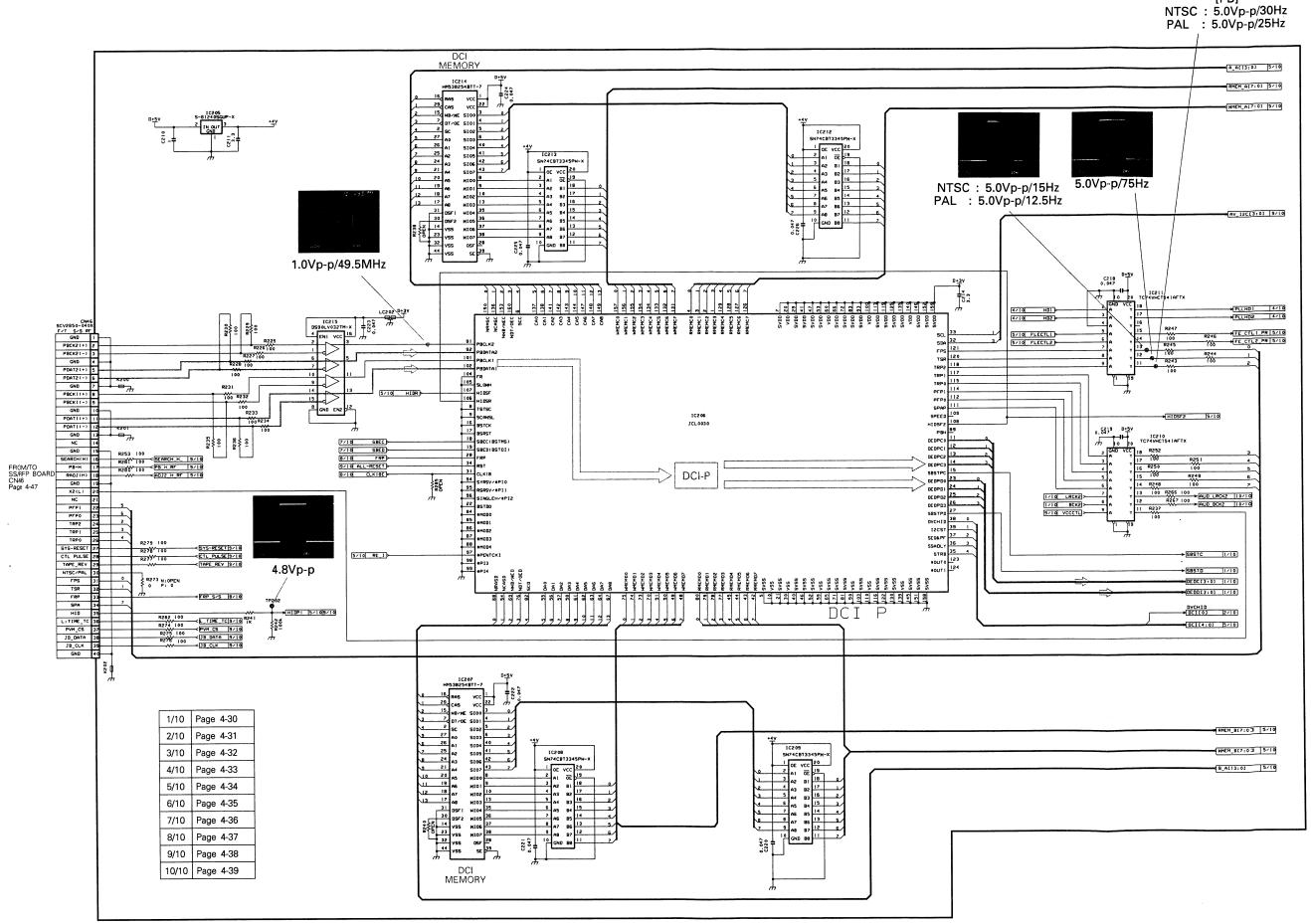


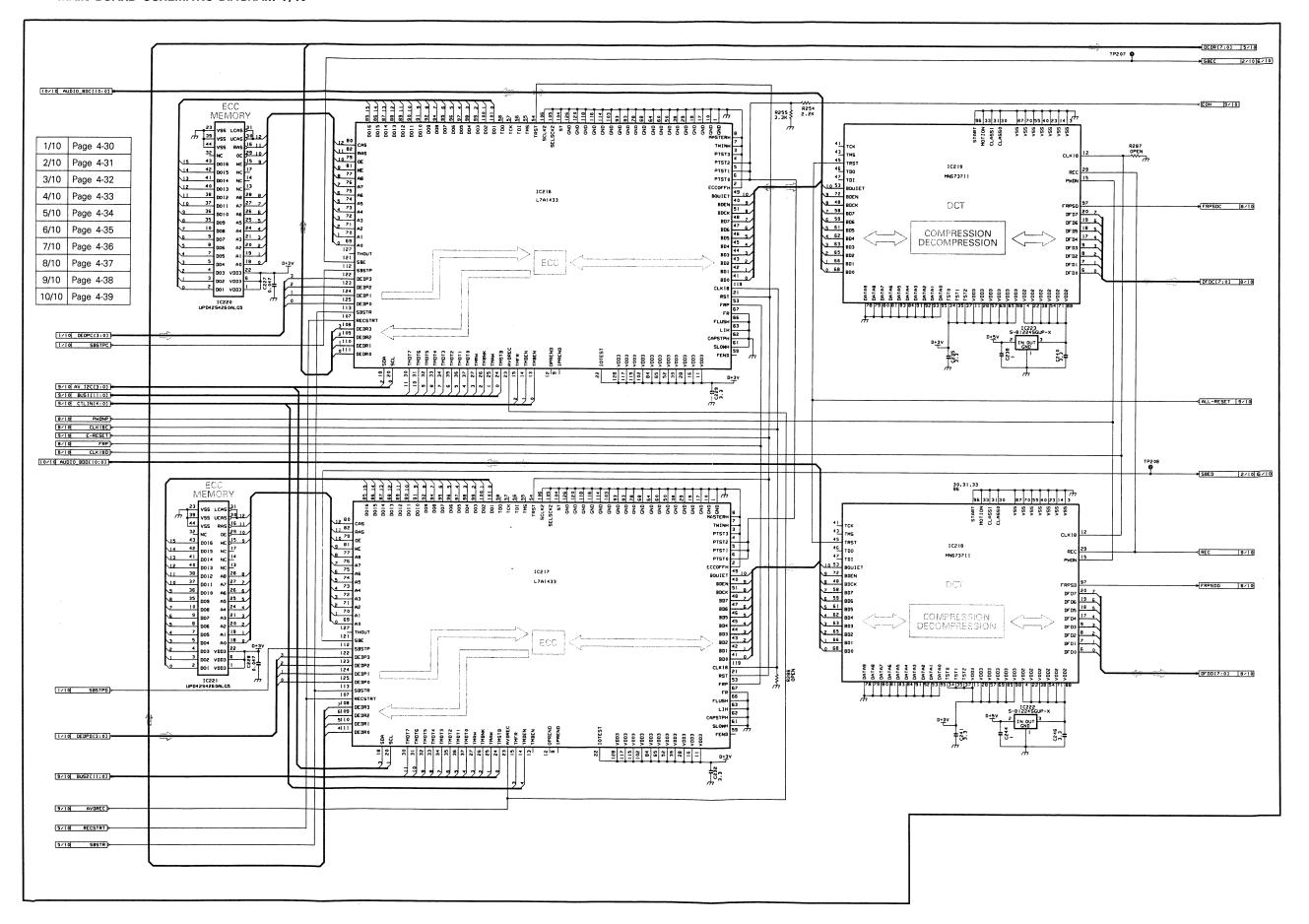


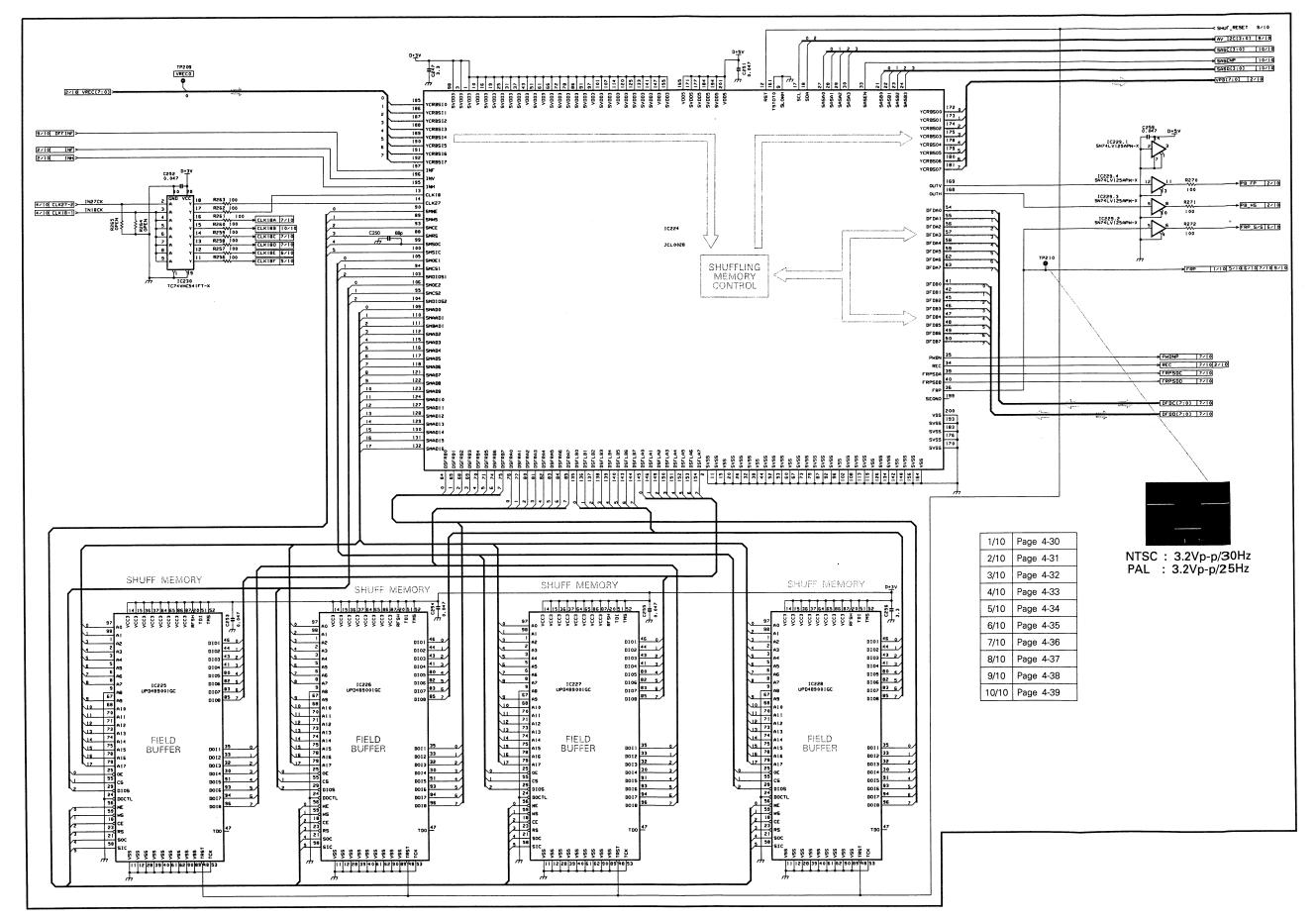


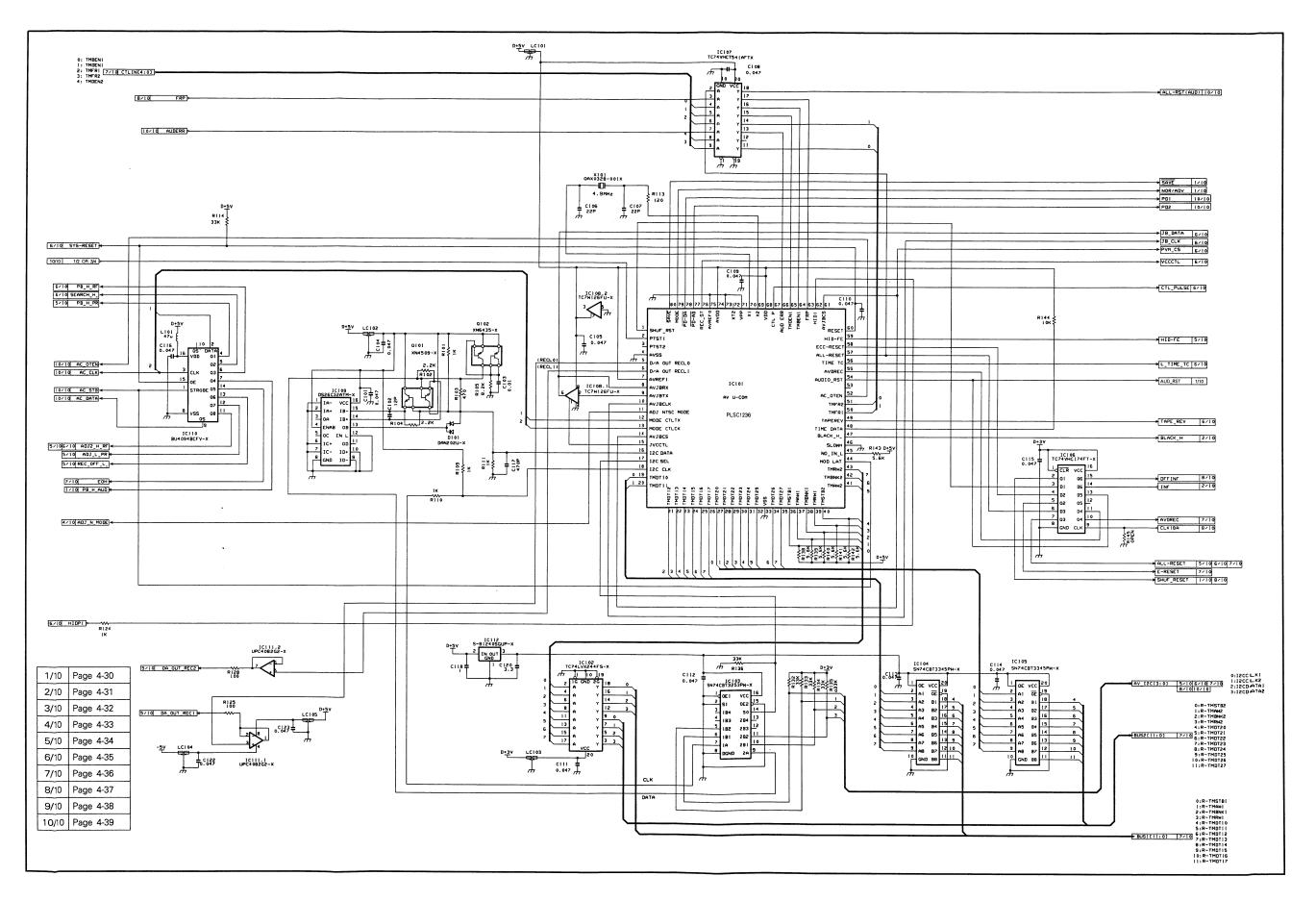


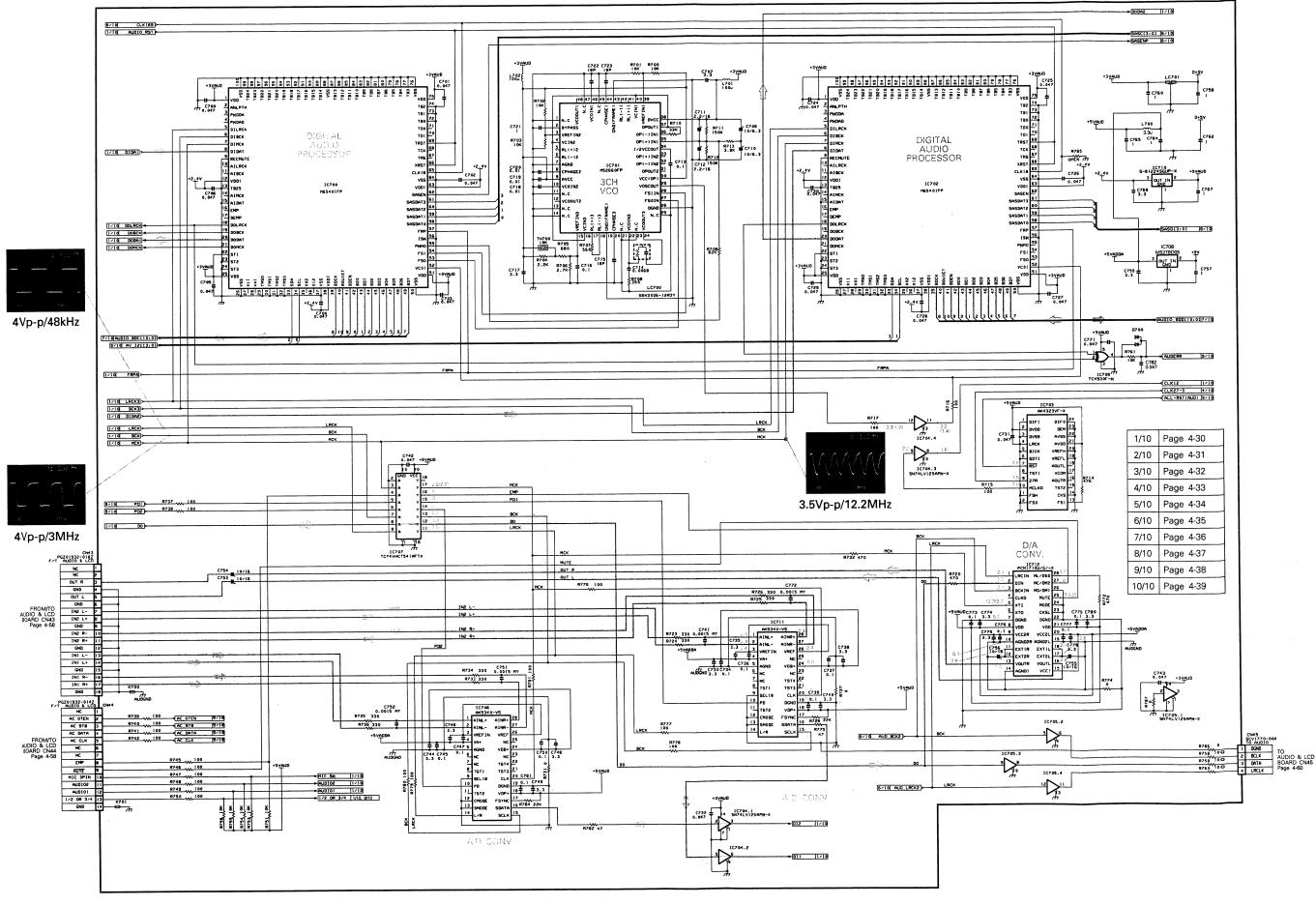


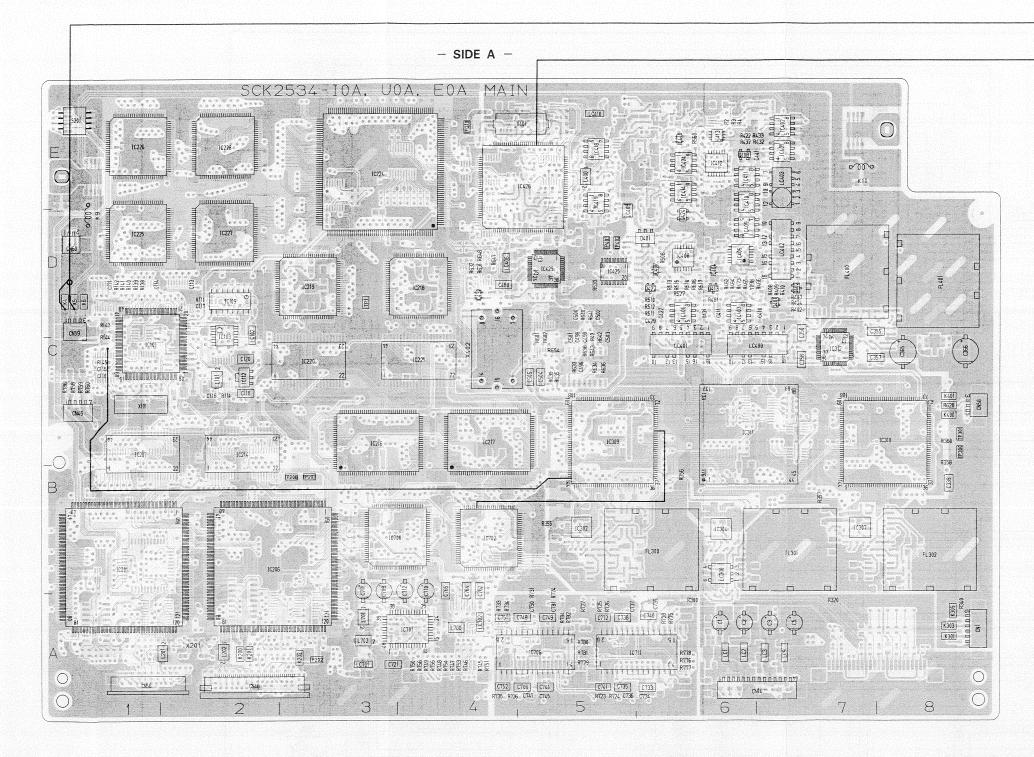












● ADDRESS TABEL OF BOARD PARTS

Each address may have an address error by one interval.

 R416
 B-7D
 R517

 R417
 R-7D
 R520

 R418
 B-7D
 R521

 R419
 B-7D
 R522

 R420
 B-7E
 R526

 R420
 B-7D
 R526

 R421
 B-7D
 R526

 R423
 B-7D
 R528

 R423
 B-7E
 R530

 R430
 B-7E
 R531

 R431
 B-7E
 R532

 R432
 A-6E
 R533

 R433
 A-6E
 R542

 R436
 B-6E
 R542

 R443
 B-6E
 R542

 R441
 B-6D
 R550

 A-5D R3
A-5E R4
B-5E R5
B-4E R6
A-5D R7
B-4D R8
B-5C R9
A-4D R10
B-4E R11
B-4E R12
B-5C R16
A-3B R17
A-4A R18
B-5D R14
B-5E R16
A-3B R20
B-4B R20
B-4B R20
B-4B R20
B-4B R20
B-4B R21
B-6A R25
B-3B R26
B-3B R26
B-3B R26
B-3B R31
B-6E R33
B-6E R33
B-6E R34
B-6A R29
B-7E R100
B-7E R200
B-7 A-6E A-6E B-7E
 B-2A
 R324
 B-6A

 B-1A
 R325
 B-6B

 B-2A
 R328
 B-6B

 B-2A
 R329
 B-6B

 B-2A
 R330
 B-5B

 B-2A
 R333
 B-5B

 B-2A
 R333
 B-6B

 B-2A
 R333
 B-6B

 B-2A
 R334
 B-6B

 B-2A
 R334
 B-6B

 B-2A
 R343
 B-8B

 B-1A
 R346
 B-8B

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 R346
 B-8B

 B-1A
 R347
 B-8B

 B-1A
 R347
 B-8B

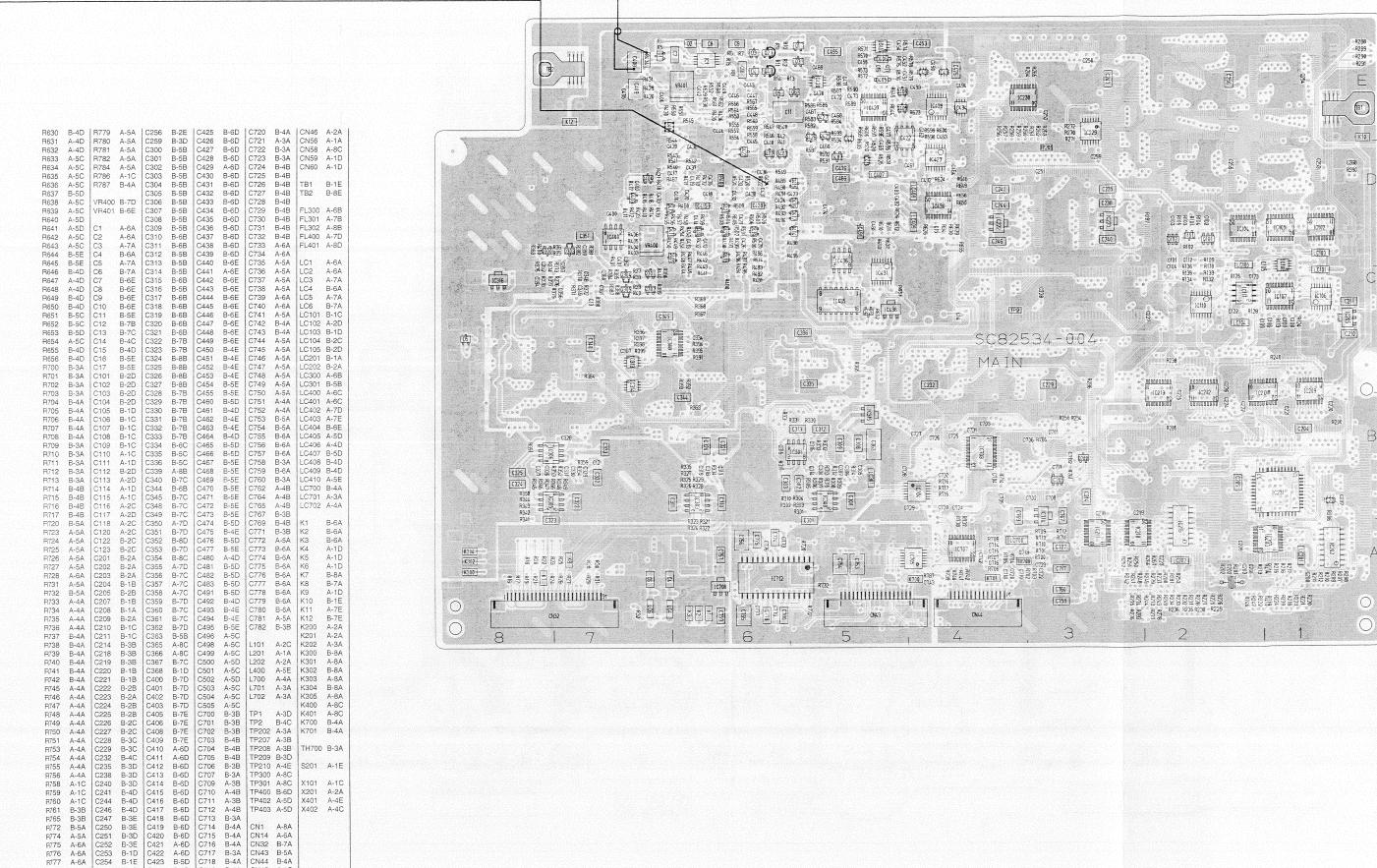
 B-2A
 R350
 B-7B

 B-2A
 R355
 A-7B

 B-2A
 R353
 B-7B

 B-2A
 R353
 B-7B

 | ICH02 | ICH03 | ICH02 | ICH02 | ICH03 | ICH02 | ICH03 | ICH02 | ICH03 | ICH04 | ICH02 | ICH03 | ICH0 R563
R564
R565
R566
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R612
R623
R624
R625
R626 R221 B-1A R323 B-6B B-4D



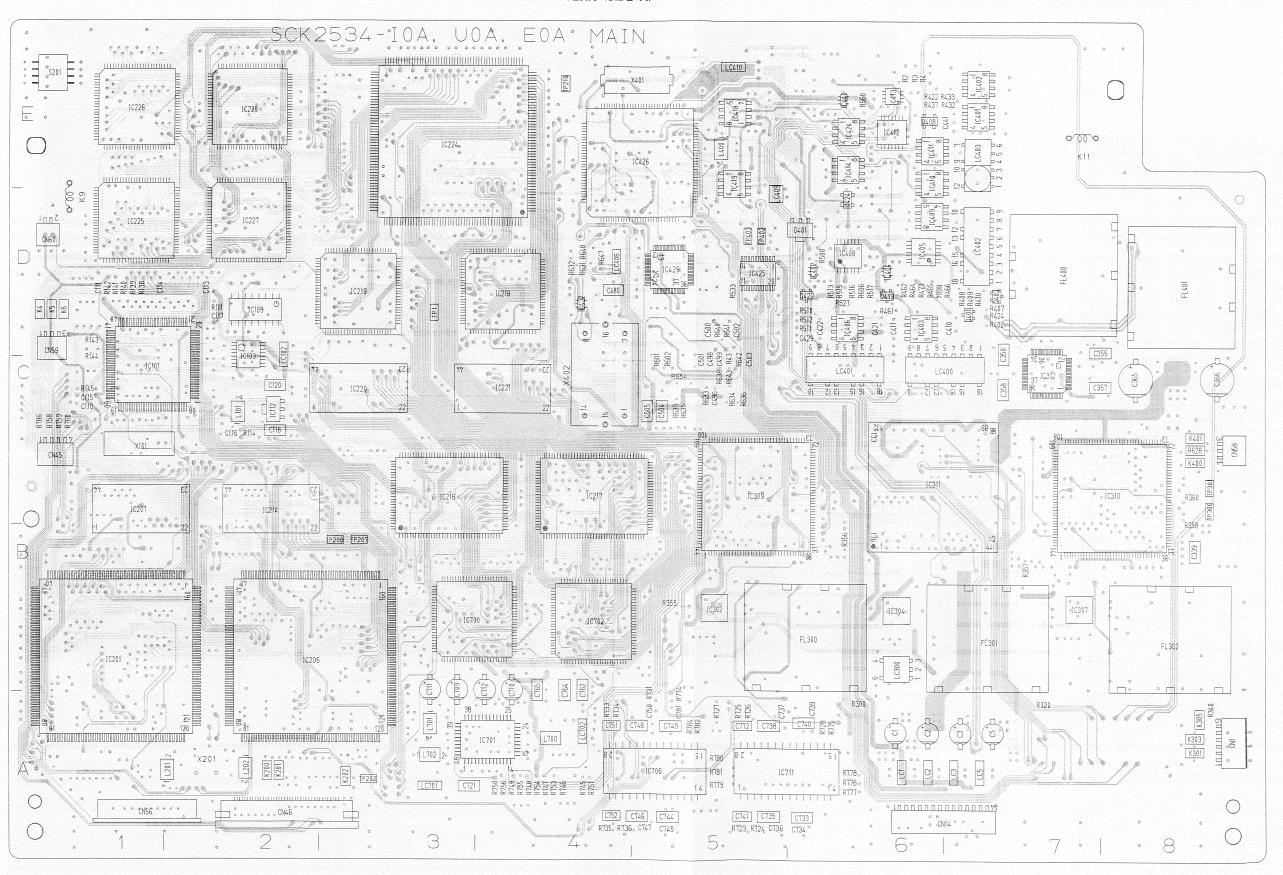
A-2A A-4E

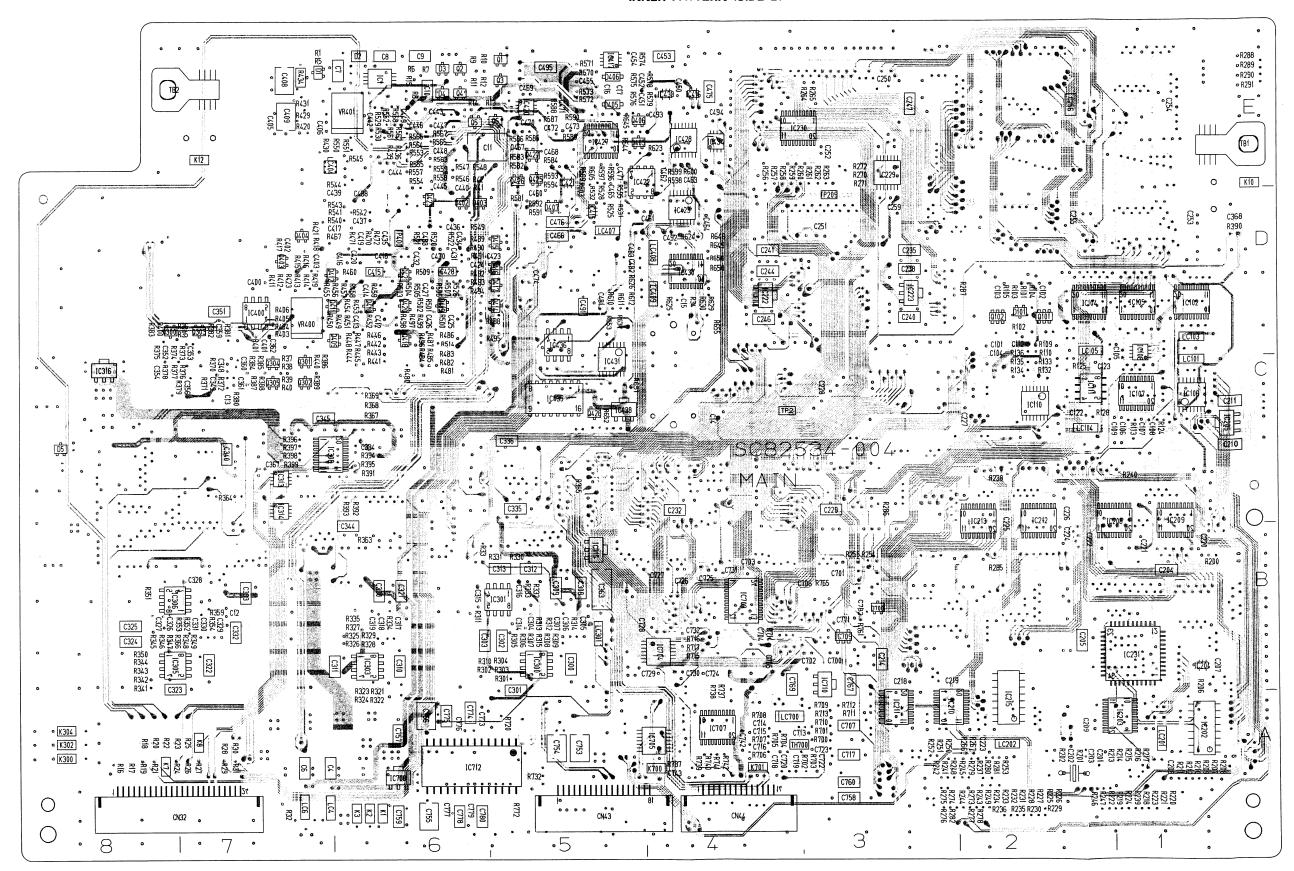
TP403 A-5D

CN1 A-8A CN14 A-6A CN32 B-7A CN43 B-5A CN44 B-4A

C418 C419 C420 C421 C422 C423

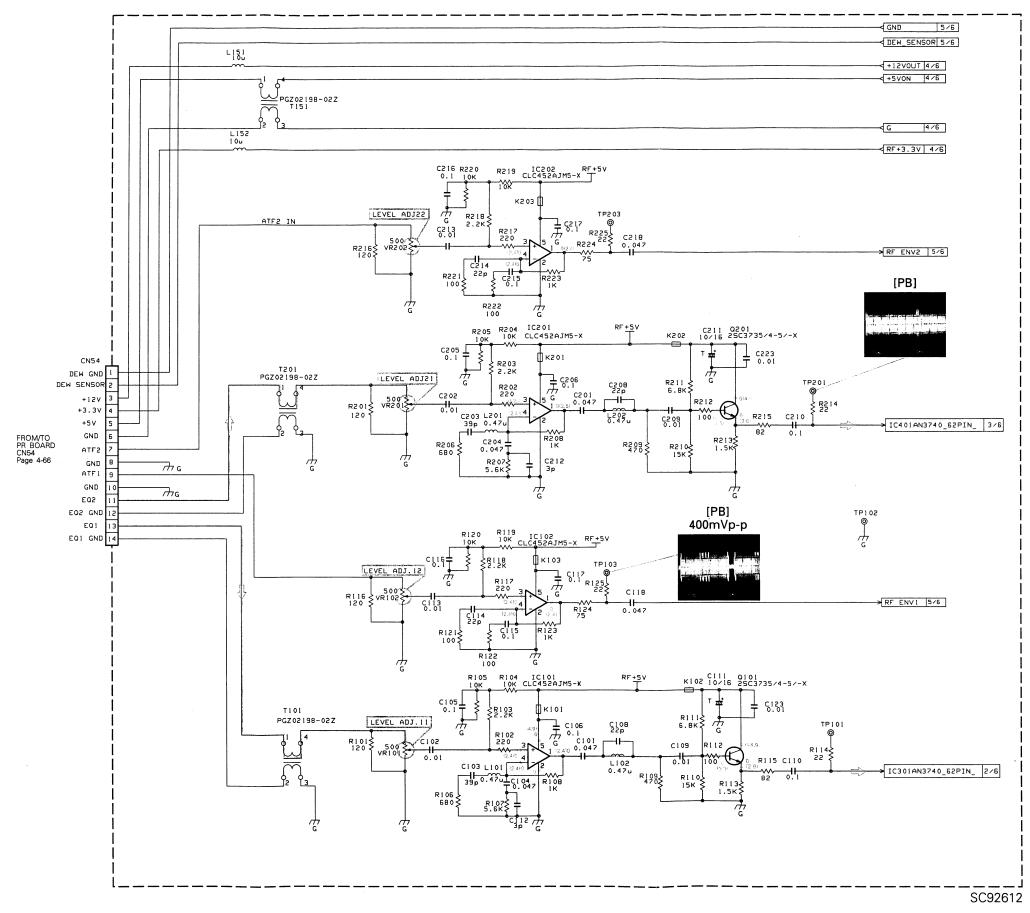
C255 B-2D C424 B-6D C719 B-4A CN45 A-1C

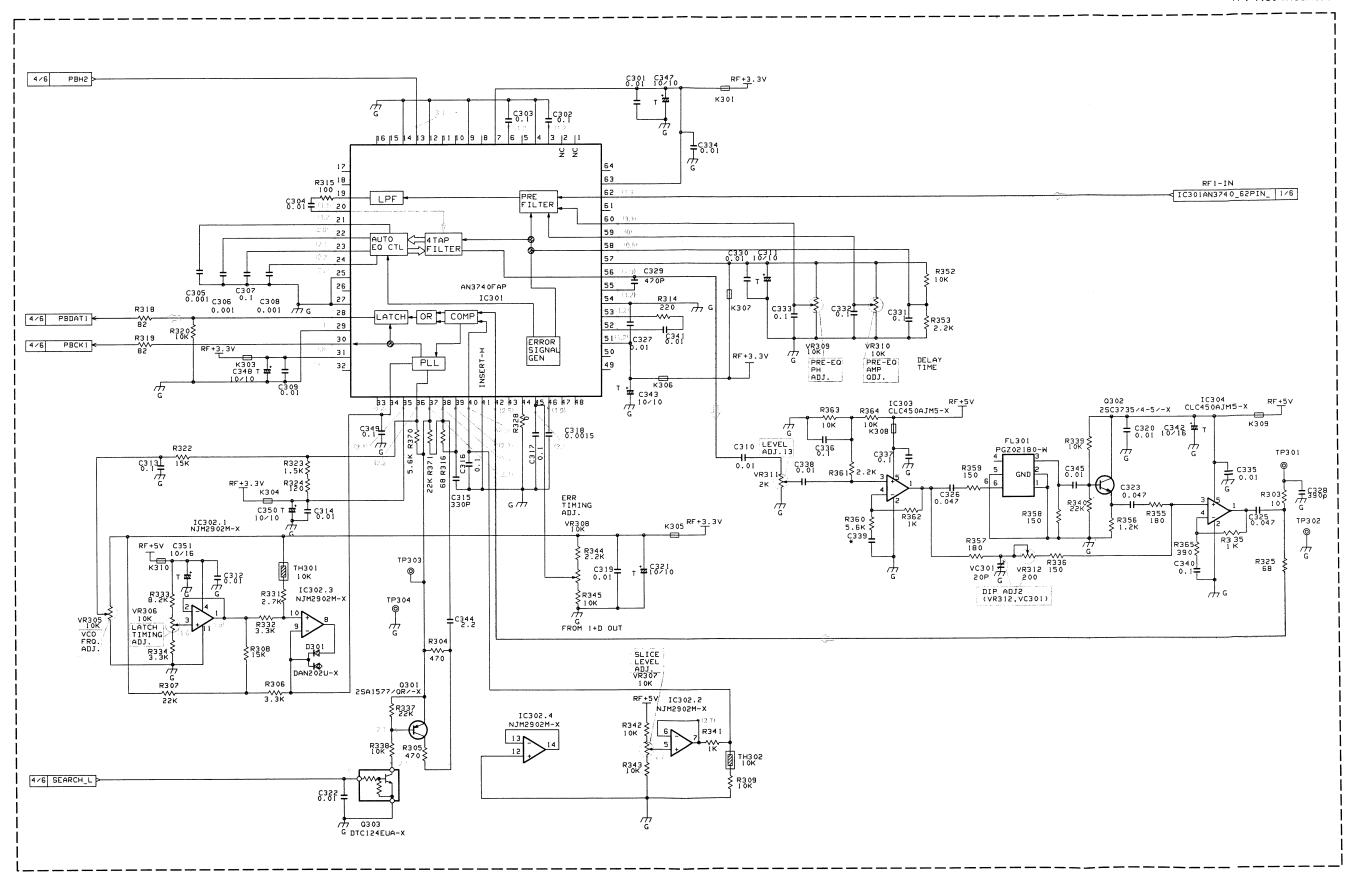


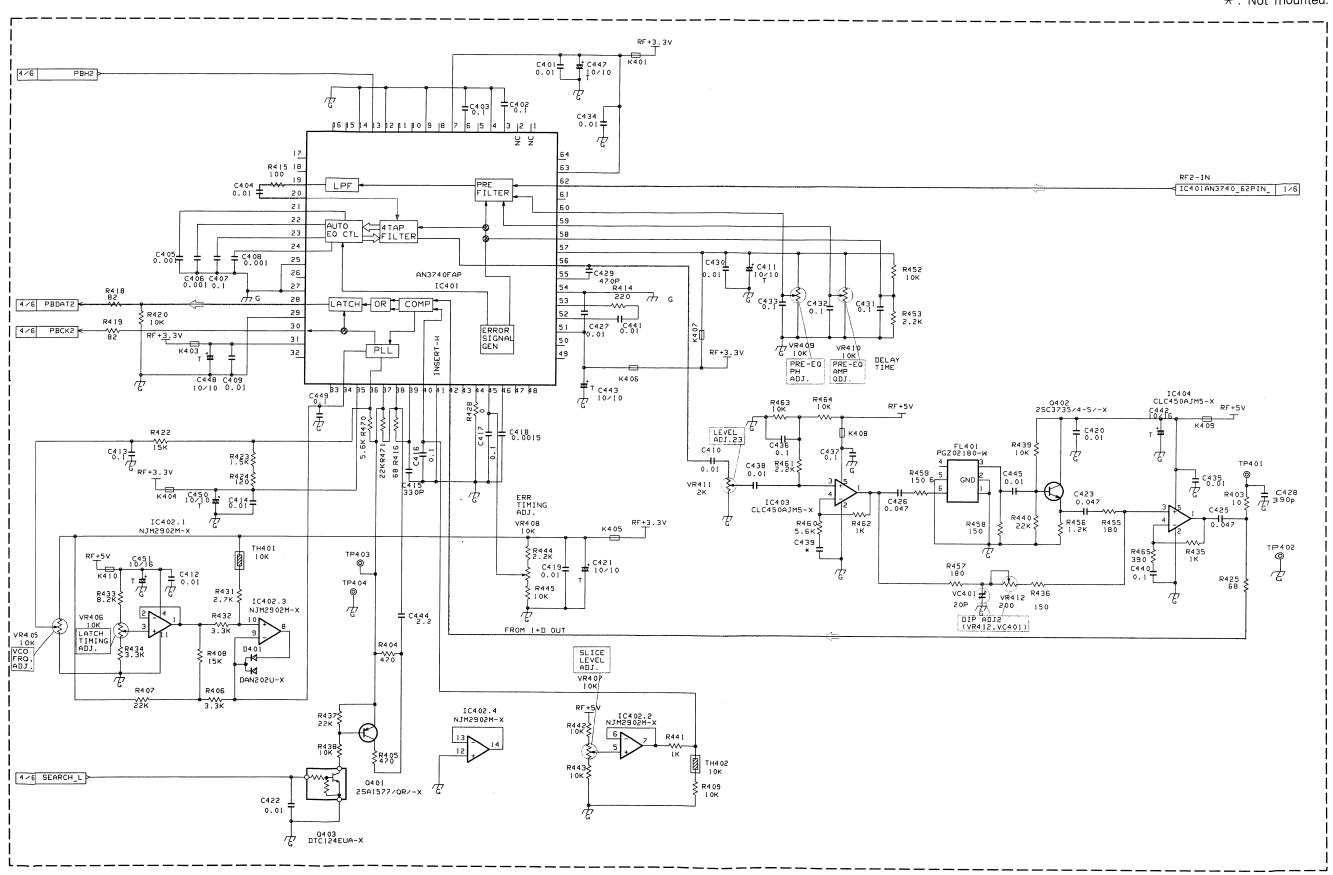


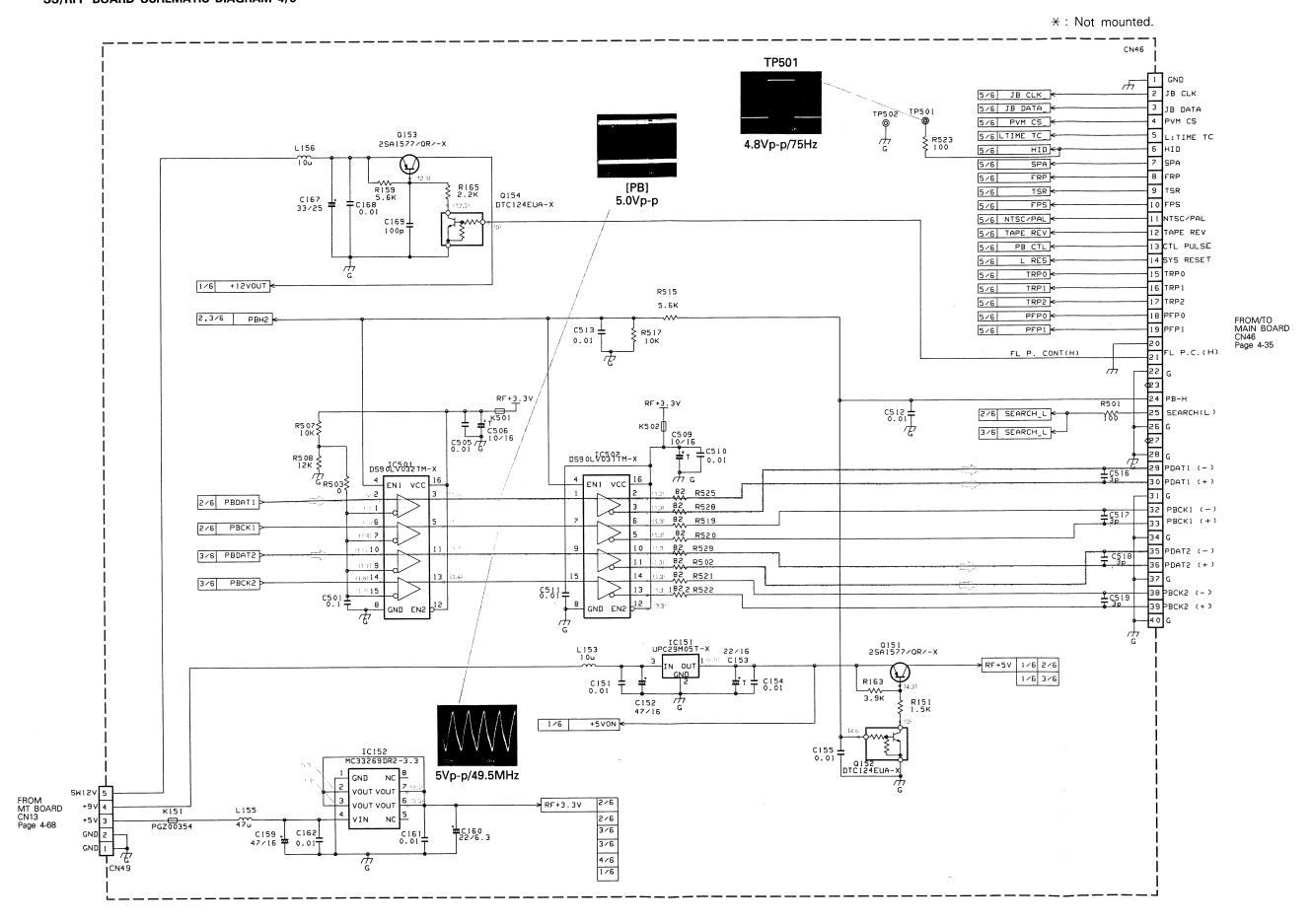
- SS/RFP BOARD SCHEMATIC DIAGRAM 1/6 -

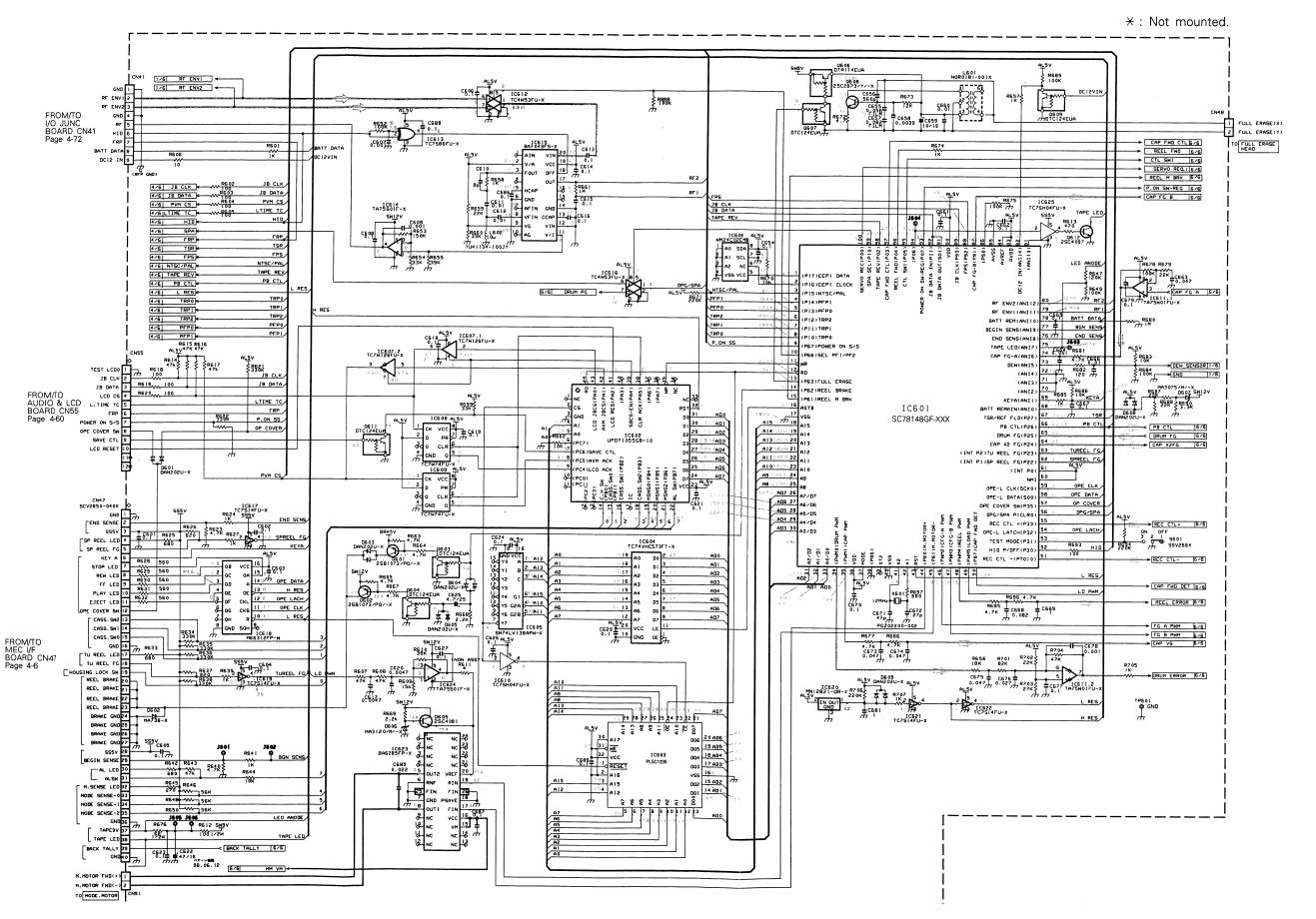
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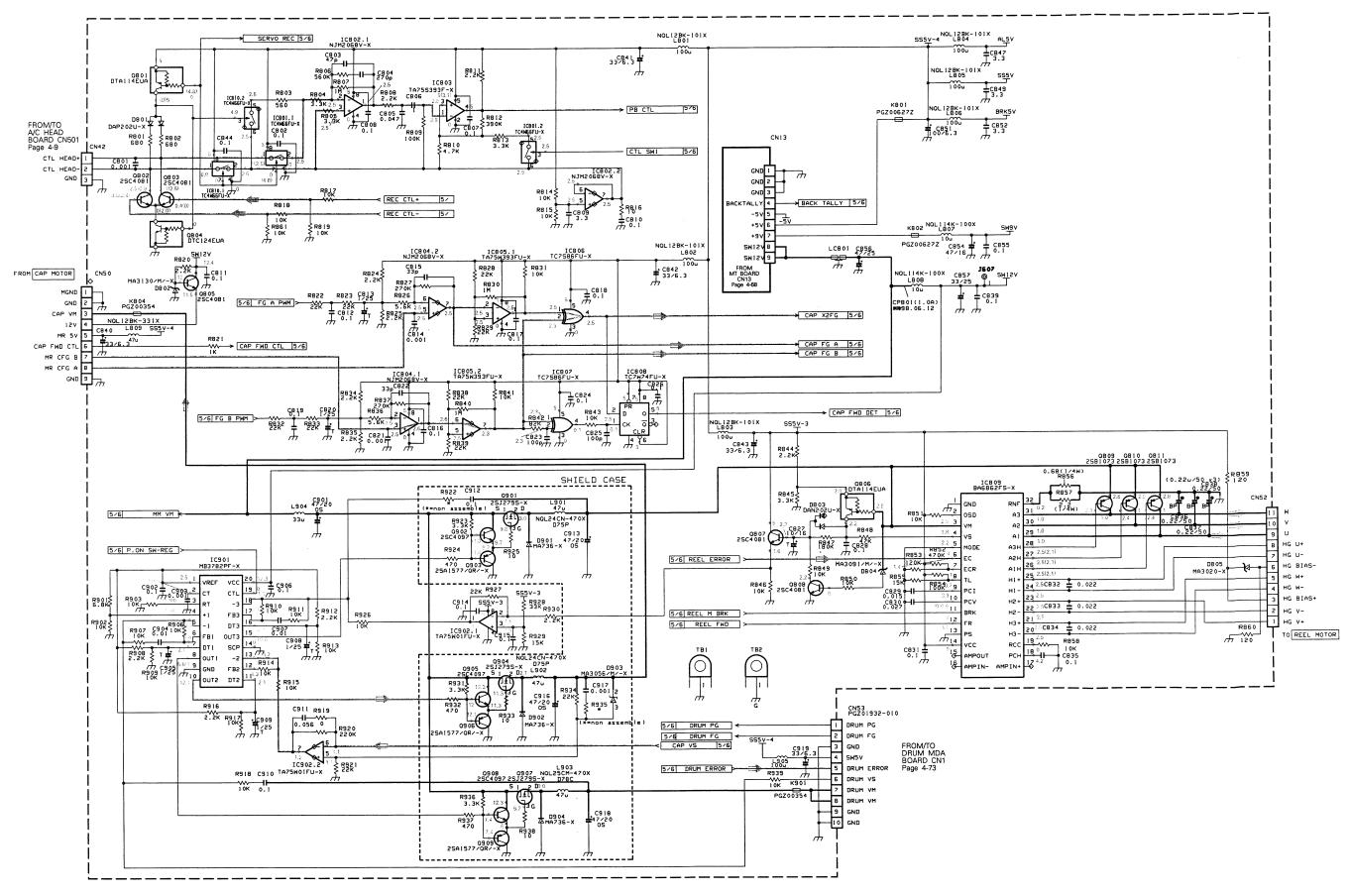


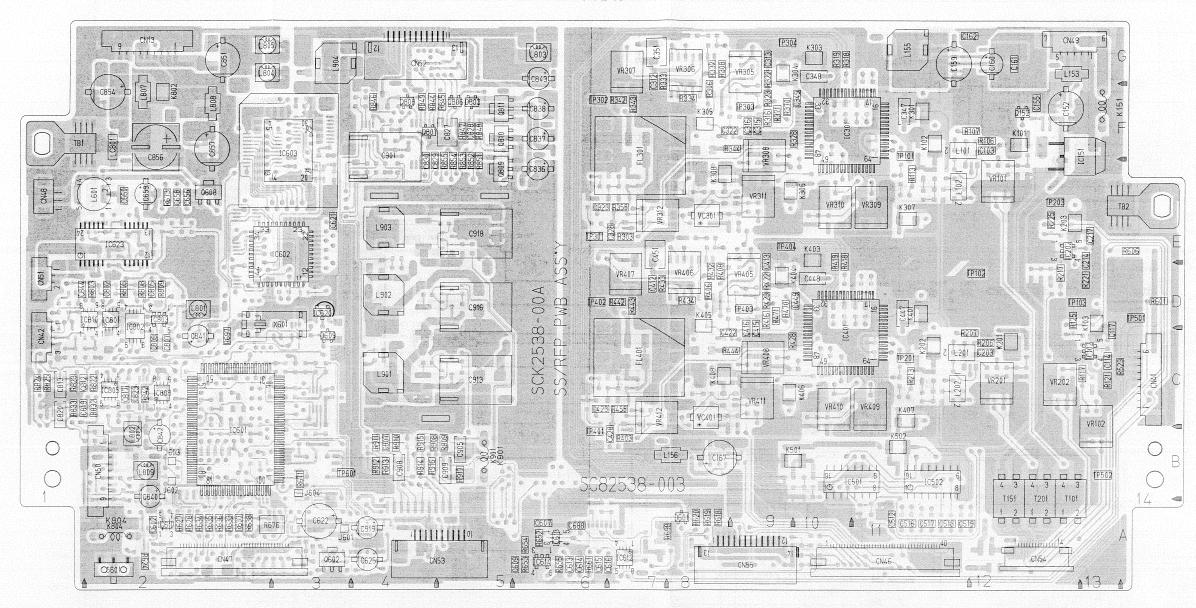










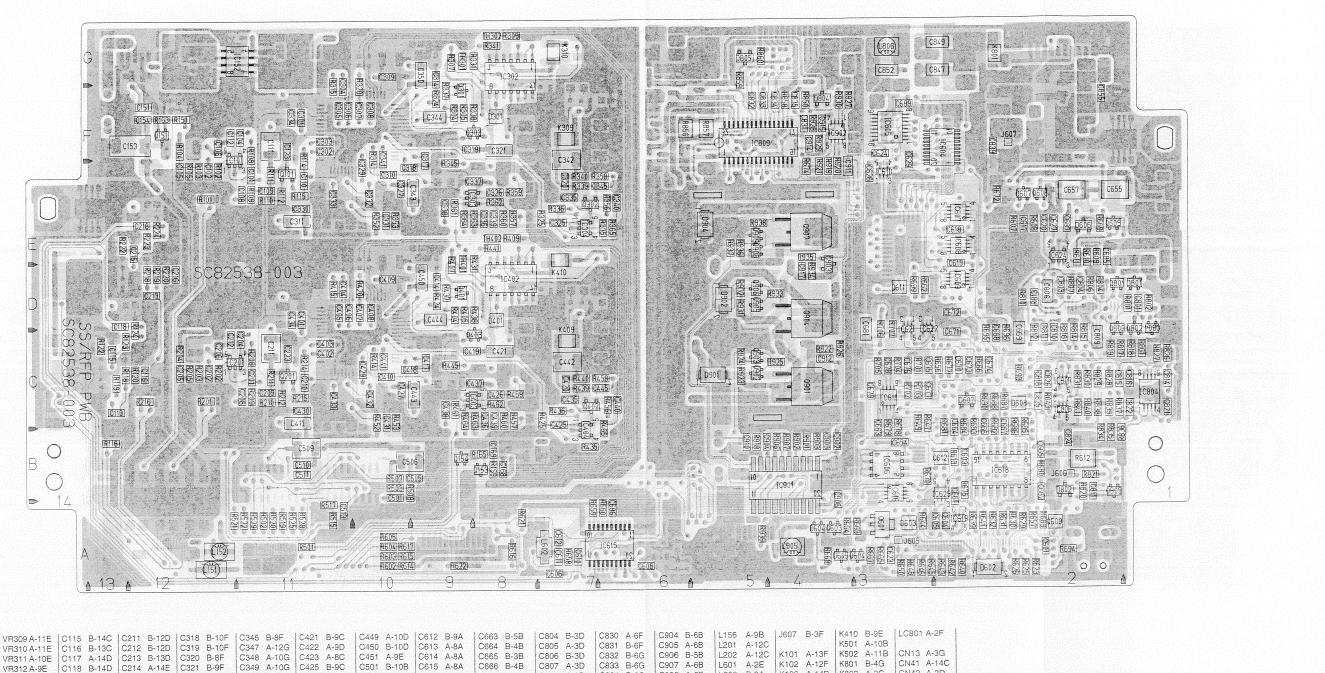


ADDRESS TABEL OF BOARD PARTS

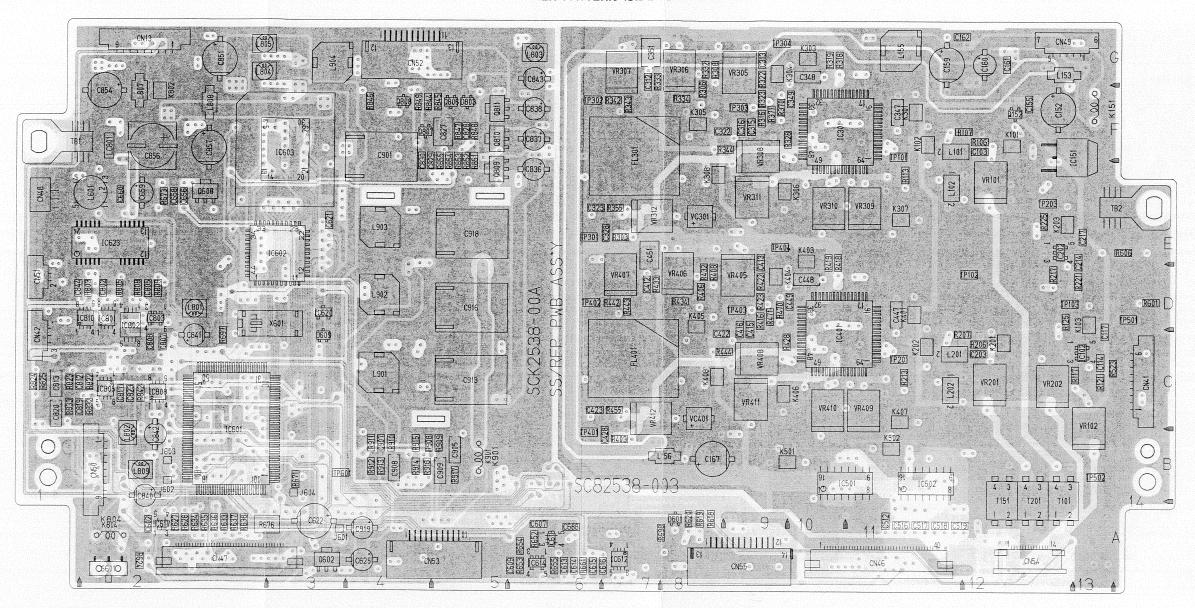
Each address may have an address error by one interval.

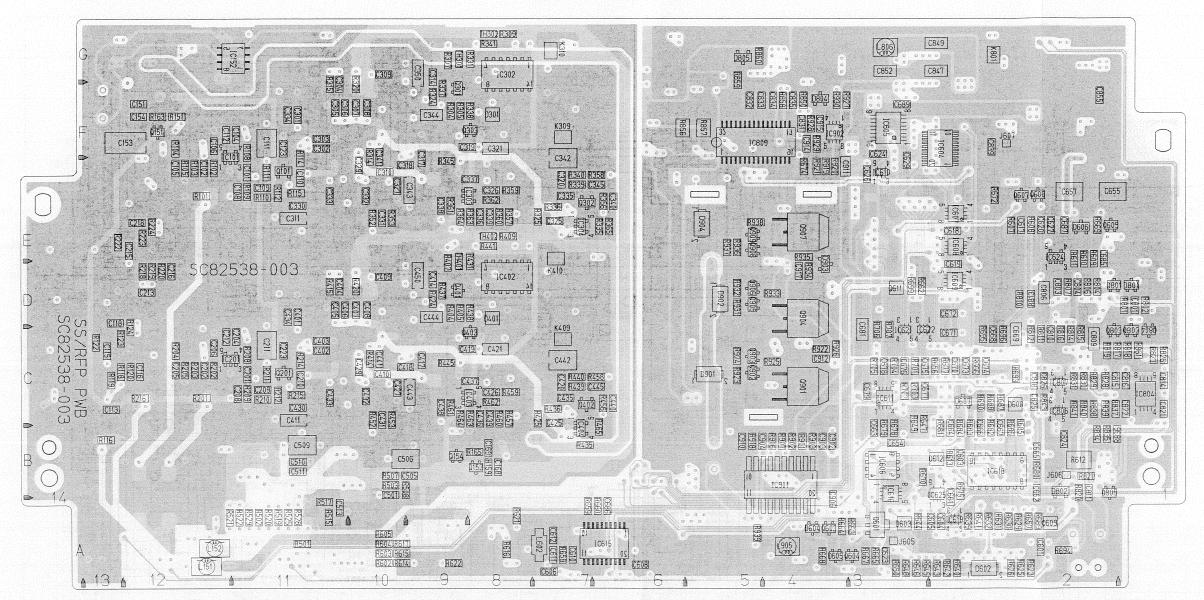
A-1C
Side Y axis

IC101 B-12F	IC611 B-5C	IC902 B-5F	Q802 B-2D	D605 B-5A	R112 B-12E	R209 B-12C	R316 A-10F	R355 A-8E	R422 A-10D	R459 B-9C	R603 B-11A	R629 B-3A	R656 B-4C	R682 B-4B	R804 B-2D	R830 B-2C	R856 B-7F
IC102 A-14C	IC612 A-8A		Q803 B-2D	D606 B-2E	R113 A-12F	R210 B-12C	R318 A-11G	R356 B-8E	R423 A-10D	R460 B-9C	R604 B-11A	R630 B-3A	R657 B-3A	R683 B-4B	R805 A-2D	R831 B-3C	R857 B-7F
IC151 A-14F	IC613 A-8A	Q101 B-12F	Q804 B-2D	D607 B-4C	R114 B-11F	R211 B-12C	R319 A-11G	R357 B-9E	R424 B-10D	R461 B-10C	R605 B-11A	R631 B-3A	R658 B-8A	R684 B-4B	R806 B-2D	R832 A-2C	R858 B-6G
IC152 B-12G	IC614 A-7A	Q151 B-13F	Q805 B-2B	D608 B-3C	R115 B-12E	R212 B-12C		R358 B-8F	R425 B-9C	R462 B-9C	R606 A-14E	R632 B-4A	R659 B-8A	R685 B-3B	R807 B-3D	R833 A-2C	R859 B-6G
IC201 B-12C	IC615 B-8A	Q152 A-13G	Q806 A-6G	D609 A-5D	R116 B-14B	R213 A-12C	R322 A-10G	R359 B-9E	R428 A-10D	R463 B-9C	R607 B-3E	R633 A-4A	R660 B-8A	R686 B-3B	R808 A-3D	R834 B-2B	R860 B-6G
IC202 A-13G		Q153 B-9B	Q807 A-6F	D801 B-2D	R117 A-14C		R323 A-10G		R431 B-9E	R464 B-10C	R608 B-3E	R634 A-3A	R661 A-8A	R687 B-3C	R809 A-3D	R835 B-2B	R861 B-2C
IC301 A-11F	IC617 A-3A	Q154 B-10B	Q808 A-6G	D802 B-3B	R118 B-14C	R215 B-12C		R361 B-10E	R432 A-9D	R465 B-8B	R609 B-2E	R635 A-4A	R662 B-4D	R688 B-4C	R810 B-3D	R836 B-2B	R901 B-6B
IC302 B-9G	IC618 B-4B	Q201 B-12C	Q809 A-7F	D803 A-7G	R119 B-14C	R216 B-13C		R362 B-9E	R433 A-9D	R470 A-10D	R610 B-2E	R636 A-4A	R663 B-5A	R689 B-3A	R811 B-3D	R837 B-2C	R902 B-6B
IC303 B-10E	IC619 B-4A	Q301 B-10G	Q810 A-7F	D804 B-6G	R120 B-13C	R217 A-13D		R363 B-9E	R434 A-9D	R471 A-10D	R611 B-3E	R637 A-4A	R664 B-5A	R690 B-4C	R812 B-3D	R838 B-2C	R903 B-6B
IC304 B-8E	IC620 A-5D	Q302 B-8E	Q811 A-7G	D805 B-6G	R121 A-14C	R218 B-13D	R331 B-9G	R364 B-10E		R501 B-11A	R612 B-2B	R638 A-4A	R665 B-5A	R693 B-3C	R813 B-3D	R839 B-2C	R906 B-6B
IC401 A-11D	IC621 B-5D	Q303 B-9F	Q901 B-6C	D901 B-7C	R122 B-14D	R219 B-13D	R332 A-9G	R365 B-8E	R436 B-9C	R502 B-12A	R613 B-4B	R639 B-4A	R666 B-4C	R694 B-3A	R814 B-3D	R840 B-2C	R907 B-6B
IC402 B-9D	IC622 B-4D	Q401 B-10D	Q902 B-6C	D902 B-7D	R123 B-14D	R220 B-13D	R333 A-9G	R370 A-10G		R503 B-10B	R614 B-10A	R640 B-4A	R667 B-5A	R695 B-4D	R815 B-2D	R841 B-3C	R908 A-6B
IC403 B-10C	IC623 A-2E	Q402 B-8C	Q903 B-6C	D903 B-5E	R124 B-13D	R221 A-14D	R334 A-9G	R371 A-10F		R507 B-10B	R615 B-10A	R641 B-4A	R668 B-5A	R696 B-3D	R816 B-3D	R842 A-3C	R909 A-6B
IC404 B-8B	IC624 B-3E	Q403 B-9D	Q904 B-6D	D904 B-7E	R125 A-13D	R222 B-14E	R335 B-8E	R403 A-8B	R439 B-8C	R508 B-10B	R616 B-9A	R642 B-4A	R669 B-2E	R697 A-4D	R817 B-2C	R843 B-3C	R910 A-6B
IC501 A-11B	IC625 B-4B	Q601 B-5A	Q905 B-6D		R151 B-13F	R223 B-13E	R336 B-9E	R404 B-10D		R515 B-11A	R617 B-10A	R643 B-4A	R670 B-4B	R698 A-9A	R818 B-2C	R844 A-6G	R911 A-5B
IC502 A-12B	IC801 A-2D	Q602 A-5A	Q906 B-6D	R101 B-13E	R159 B-9B	R224 B-13E	R337 B-10G	R405 B-10D		R517 B-11A	R618 A-9A	R644 B-4A	R671 A-5B	R699 B-4D	R819 B-2C	R845 A-6G	R912 A-5B
IC601 A-4B	IC802 A-3D	Q603 B-5A	Q907 B-6E	R102 B-13F	R163 B-13F	R225 A-13E	R338 B-9G	R406 A-9D	R442 A-8D	R519 B-12A	R619 A-9A	R645 B-4A	R672 B-4E	R701 B-4C	R820 B-2B	R846 A-5G	R913 A-6B
IC602 A-4E	IC803 A-3D	Q604 B-5A	Q908 B-6E	R103 B-13F	R165 B-9B	R303 A-8E	R339 B-8F	R407 B-10E		R520 B-12A	R620 A-9A	R646 B-4A	R673 A-3E	R702 B-5C	R821 B-2B	R847 A-6F	R914 A-6B
IC603 A-4F	IC804 B-2C	Q605 B-2E	Q909 B-6E	R104 B-13F	R201 B-13C		R340 B-8F	R408 A-9D	R444 A-10C	R521 B-12A	R621 B-9A	R647 B-4B	R674 B-6F	R703 B-4C	R822 A-2C	R848 A-7F	R915 A-6B
IC604 B-4F	IC805 A-2C	Q606 B-3E		R105 B-13F	R202 B-13C	R305 B-10G		R409 B-9E	R445 B-10C	R522 B-12A	R622 B-10A	R648 B-4A	R675 B-4B	R704 B-5C	R823 A-2C	R849 A-6G	R916 A-6B
IC605 B-5F	IC806 B-3C	Q607 B-3E	D301 B-9F	R106 A-12F	R203 B-13C	R306 A-9G	R342 A-8G		이 집에 사용하게 되는 것이 없는 그 없는 것이 없는 것이 없는 것이 없는 것이 없는 것이다.	R523 A-14C	R623 B-3A	R649 B-4B	R676 A-4A	R705 B-5C	R824 A-2C	R850 B-6G	R917 A-6B
IC606 B-5B	IC807 B-3C	Q608 A-4E	D401 B-9D	R107 A-12F	R204 B-13C	R307 B-10G			R453 B-10C	R525 B-12A	R624 A-3A	R650 B-5A	R677 B-4C	R706 B-5D	R825 A-2C	R851 A-7F	R918 B-6B
IC607 B-4E	IC808 A-3C	Q609 B-3A	D601 A-9A	R108 B-12F	R205 B-13C	R308 A-9G	R344 A-10F		R455 A-8C	R528 B-12A	R625 B-3A	R652 A-7A	R678 B-5B	R707 B-5D	R826 B-2C	R852 A-7F	R919 B-5F
IC608 B-4E	IC809 B-7F	Q611 B-5D	D602 B-4A	R109 B-12E	R206 A-12D	R309 B-9G	R345 B-10F		R456 B-8C	R529 B-12A	R626 B-3A	R653 A-7A	R679 B-5B	R801 B-2D	R827 B-2C	R853 A-6F	R920 B-5F
IC609 B-4D	IC810 A-2D	Q612 B-4B	D603 B-5A	R110 B-12E			R352 B-11E			R601 A-14D	R627 A-3A	R654 A-7A	R680 B-3B	R802 B-2D	R828 B-2C	R854 A-6F	R921 B-6F
IC610 B-5F	IC901 B-6B	Q801 B-2D	D604 B-6A	R111 B-12F	R208 B-12C	1H315 B-11G	R353 B-10E	H420 B-11D	1 H458 B-8C	R602 B-11A	R628 A-3A	R655 A-8A	R681 B-4B	R803 A-2D	R829 B-2C	R855 A-6F	R922 B-6C

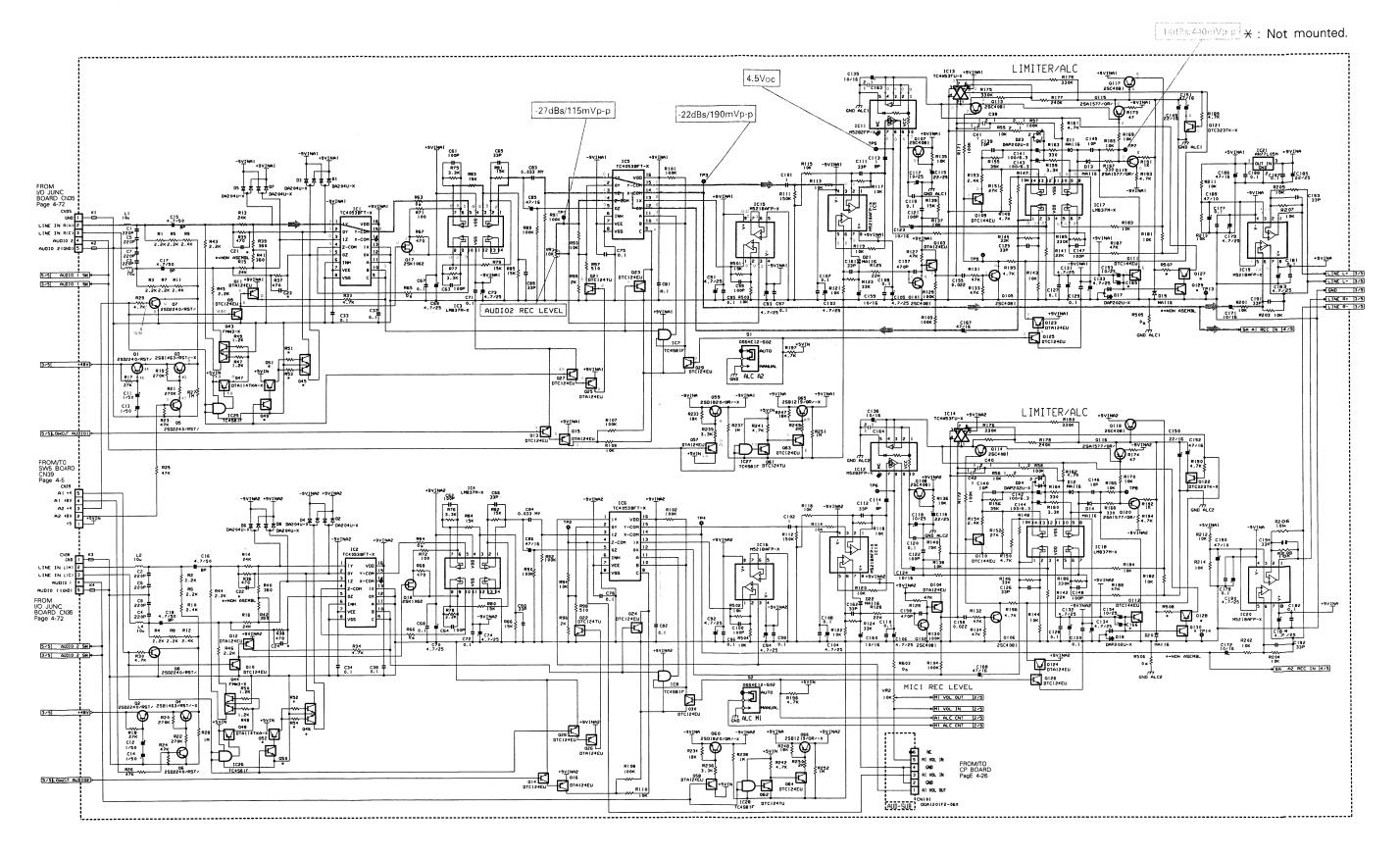


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R923 B-6C		C116 B-13C				C347 A-12G	C422				C613 A-8A	C664 B-4B	C805 A-3D	C831 B-6F	C905 A-6B	L201 A-120)	K501 A-10B	
R924 B-6C			C212 B		0320 B-8F	C348 A-10G					C614 A-8A	C665 B-3B	C806 B-3D	C832 B-6G	C906 B-5B	L202 A-120	K101 A-13F	K502 A-11B	CN13 A-3G
R925 B-6C				BURNESS STREET		C349 A-10G					C615 A-8A	C666 B-4B	C807 A-3D	C833 B-6G	C907 A-6B	L601 A-2E		K801 B-4G	CN41 A-14C
R926 B-5C			C214 A-		0321 B-9F						C616 A-8A	C667 B-3B	C808 A-3D	C834 B-6G	C908 A-6B	L602 B-9A		K802 A-3G	CN42 A-2D
R927 B-5G		C123 B-12F				C350 B-10G					C617 B-3E	C668 B-4D	C809 B-2D	C835 B-6G	C909 A-6B	L801 A-3D		K804 A-2A	CN46 A-11A
R928 B-6F	VR406 A-9D	C151 B-13G			C323 A-8E	C351 A-9G		B-10C				C669 B-3D	C810 B-3D	C836 A-7F	C910 B-6B	L802 A-3B	K201 A-13D		CN47 A-4A
R929 B-6F		C152 A-13G				C401 B-12D	C428				C618 B-4E		C811 B-2B	C837 A-7F	C910 B-5B	L803 A-7G			CN48 A-2E
R930 B-5G	VR408 A-10C	C153 B-14F			C326 B-9E	C402 B-11C	Section Control				C619 B-4E	C670 B-4C				L804 A-4G	K203 A-13E		CN49 A-13G
R931 B-6D			C223 B		C327 B-10F	C403 B-11D		B-12C			C620 B-3E	C671 B-4D	C812 A-2C	C838 A-7G	C912 B-6C		K301 A-12G		CN50 A-2B
R932 B-6D	VR410 A-11C	C155 A-13G	C301 B		C328 A-8E	C404 B-11D					C621 A-5E	C672 B-4D	C813 A-2C	C839 B-4F	C913 A-7C	L805 A-4G		T101 A-13B	CN51 A-2D
R933 B-6D	VR411 A-10C	C159 A-12G			C329 B-11F	C405 B-11D		B-11C			C622 A-5A	C673 B-4C	C814 B-2C	C840 A-3B	C914 B-6F	L806 B-5G	K304 A-10G		CN52 A-6G
R934 B-6D	VR412 A-9C	C160 A-13G	C303 B	-11F (C406 B-11D		B-11C			C623 B-5A	C674 B-4C	C815 B-2C	C841 A-3D	C915 B-6F	L807 A-3G			CN53 A-6A
R935 B-6E		C161 A-13G							C517		C624 B-5F	C675 B-4C	C816 B-2C	C842 A-3B	C916 A-7D	L808 A-4G	K305 A-9F	T201 A-13B	CN54 A-13A
R936 B-6E	C101 B-12F	C162 A-12G	C305 B	-11G C	C332 B-11E	C408 B-11D	C435	B-8C	C518		C625 A-5A	C676 B-5C	C817 A-3C	C843 A-7G	C917 B-6D	L809 A-3B	K306 A-10F	F1 004 4 0F	
R937 B-7E	C102 B-13F	C167 A-9B	C306 B	-11G C	C333 B-11E	C409 B-11D	C436	B-9C	C519	A-12A	C626 B-5F	C677 B-4C	C818 B-3C	C844 A-2D	C918 A-7E	L901 A-6C	K307 A-12E		CN55 A-10A
R938 B-6E	C103 A-12F	C168 B-9B	C307 B	-11G C	C334 B-12F	C410 B-11C	C437	B-9C	C601	B-3A	C627 B-3E	C678 B-5C	C819 A-2C	C847 B-4G	C919 A-5A	L902 A-6D	K308 A-9F	FL401 A-8C	
F939 B-6A	C104 B-12F	C169 B-9B	C308 B	-11G 0	C335 B-8E	C411 B-12C	C438	B-10C	C602	A-3A	C629 B-4F	C679 B-5C	C820 A-2C	C849 B-4G		L903 A-6E			
1,000 5 0.1	C105 B-13F	C201 B-12C	C309 B	-11G	C336 B-9E	C412 A-9D	C439	B-9C	C603	B-4B	C654 B-5B	C681 B-5D	C821 B-2C	C851 A-4G	VC301 A-9E	L904 A-5G		TH301 B-10G	
VR101 A-13F	C106 B-13F	C202 B-13C				C413 A-10E	C440	B-8C	C604	B-4A	C655 B-2E	C685 B-2E	C822 B-2C	C852 B-5G	VC401 A-9C	L905 B-6A	K401 A-12D		
VR102 A-14B	C108 B-12E	C203 A-12C			C338 B-10E	C414 B-10D	C441	B-11C	C605	B-4A	C656 A-3E	C686 B-8A	C823 A-3C	C854 A-2G			K403 A-10E		
VR201 A-13C	C109 B-12F	C204 B-12D			C339 B-9E	C415 A-10D		B-8C	C606	B-9A	C657 B-3E	C687 B-3E	C824 B-3B	C855 B-2G	L101 A-12F	J601 A-5A	K404 A-10D	TH402 B-9E	
VR202 A-13C	C110 B-11F	C205 B-13C			C340 B-8E	C416 A-10D		B-10C	C607	A-7A	C658 A-3E	C688 A-8A	C825 B-3C	C856 A-3F	L102 A-12F	J602 A-3B	K405 A-9D		
VR305 A-10G	C111 B-12F	C206 B-13C			C341 B-11F	C417 B-10C		B-10D	C608		C659 A-3E	C689 B-5G	C826 B-3C	C857 A-4F	L151 B-13A	J603 A-3B	K406 A-10C	TB1 A-2F	
VR306 A-10G	C112 B-12F	C208 B-13C			C342 B-8F	C418 B-10C		B-8C	C609		C660 A-2E	C801 B-2D	C827 A-6F	C901 A-6F	L152 B-13A	J604 A-5B	K407 A-12C	TB2 A-15E	
		C209 B-12C			C343 B-10E	C419 B-10C		A-12D	C610		C661 B-4B	C802 A-2D	C828 A-7F	C902 B-5B	L153 A-13G	J605 B-5A	K408 A-9C		
VR307 A-8G		C210 B-11C			C344 B-10F	C420 B-8C		A-10D			C662 B-3B	C803 B-3D		C903 B-5B	L155 A-12G		K409 B-8D	X601 A-4D	
VH308 A-10E	11,114 A-14(,	TUZIU B-IIU	IUOI/ D)- IUF 1	U344 D-1UF	10420 0-00	10440	7 100	10011	227	10002 000	10000 00	, 0020 / 101						



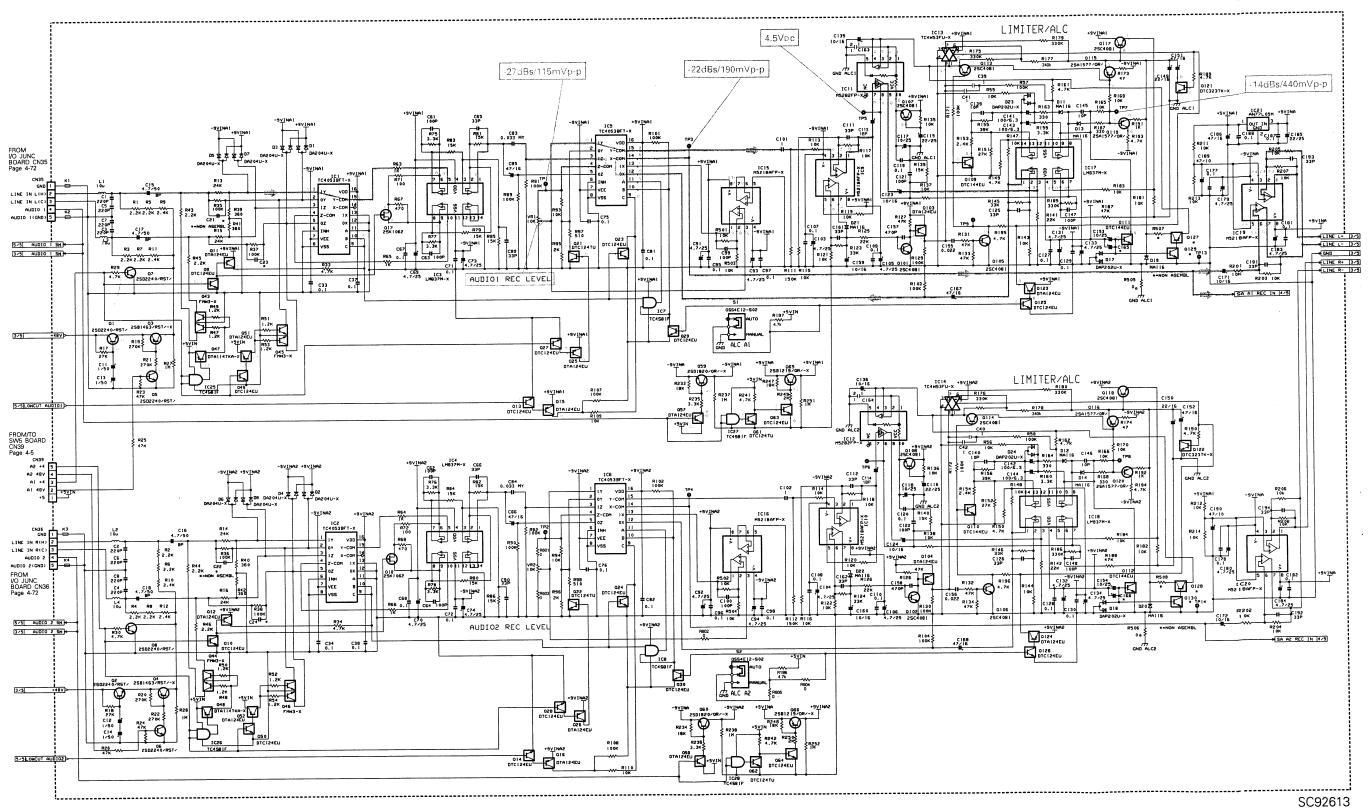


- AUDIO & LCD BOARD SCHEMATIC DIAGRAM 1/5 (ONLY FOR DY-90U) -

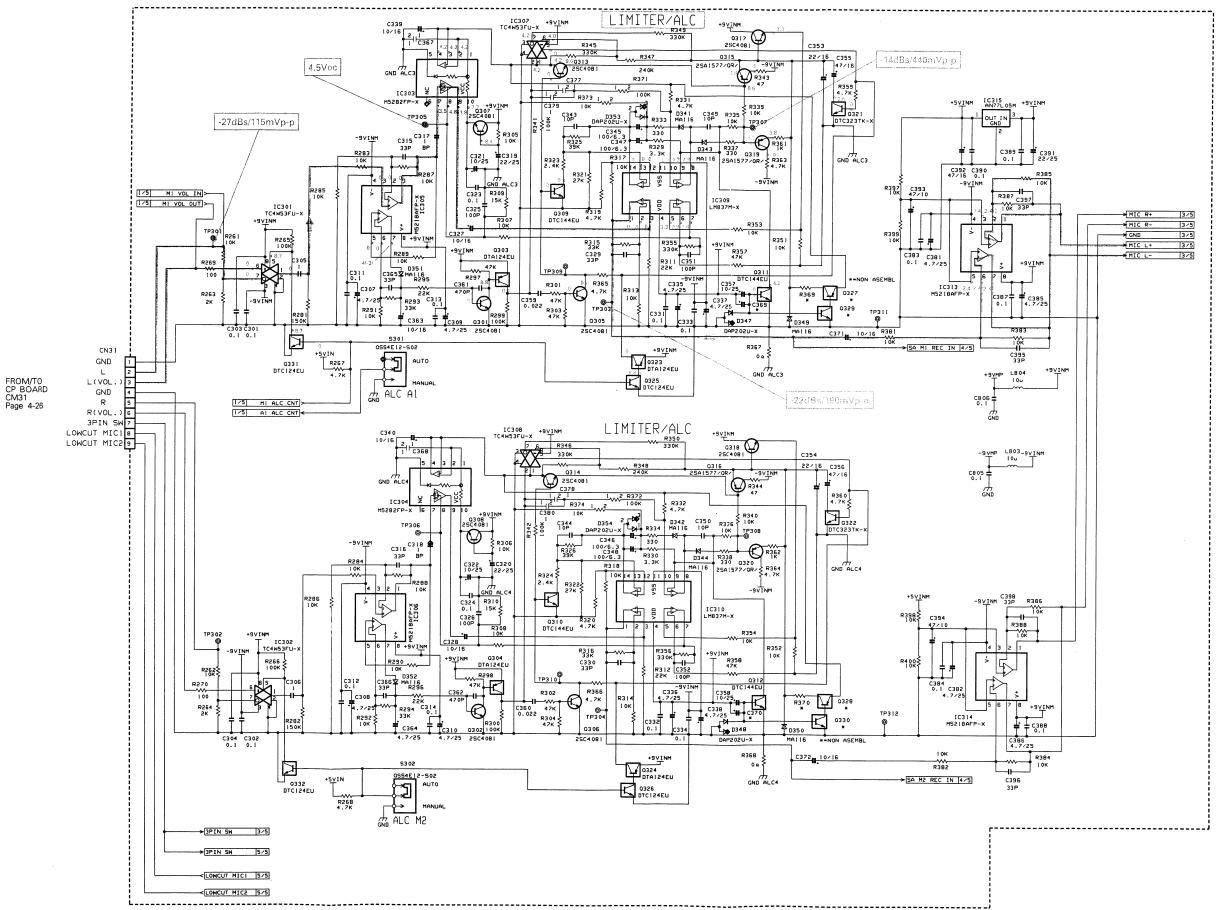


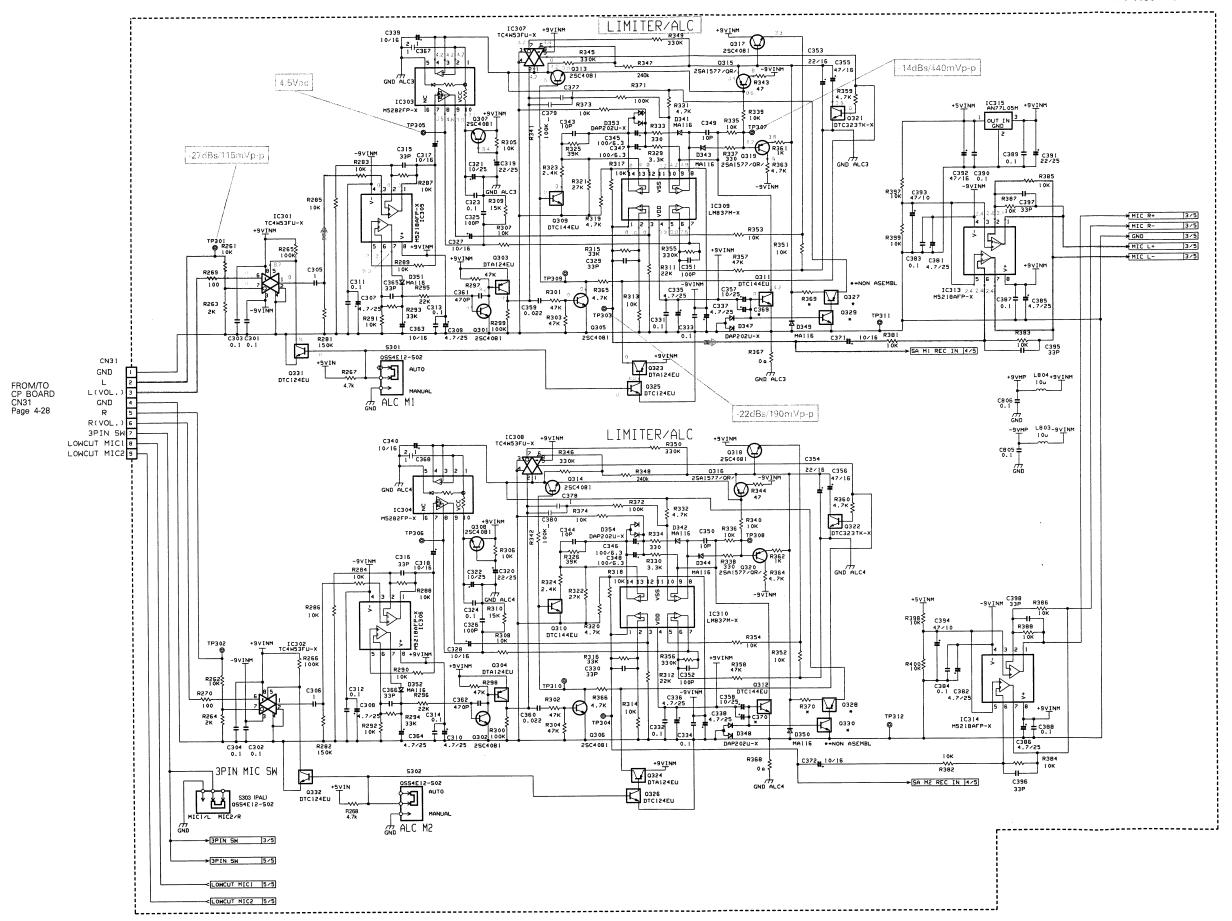
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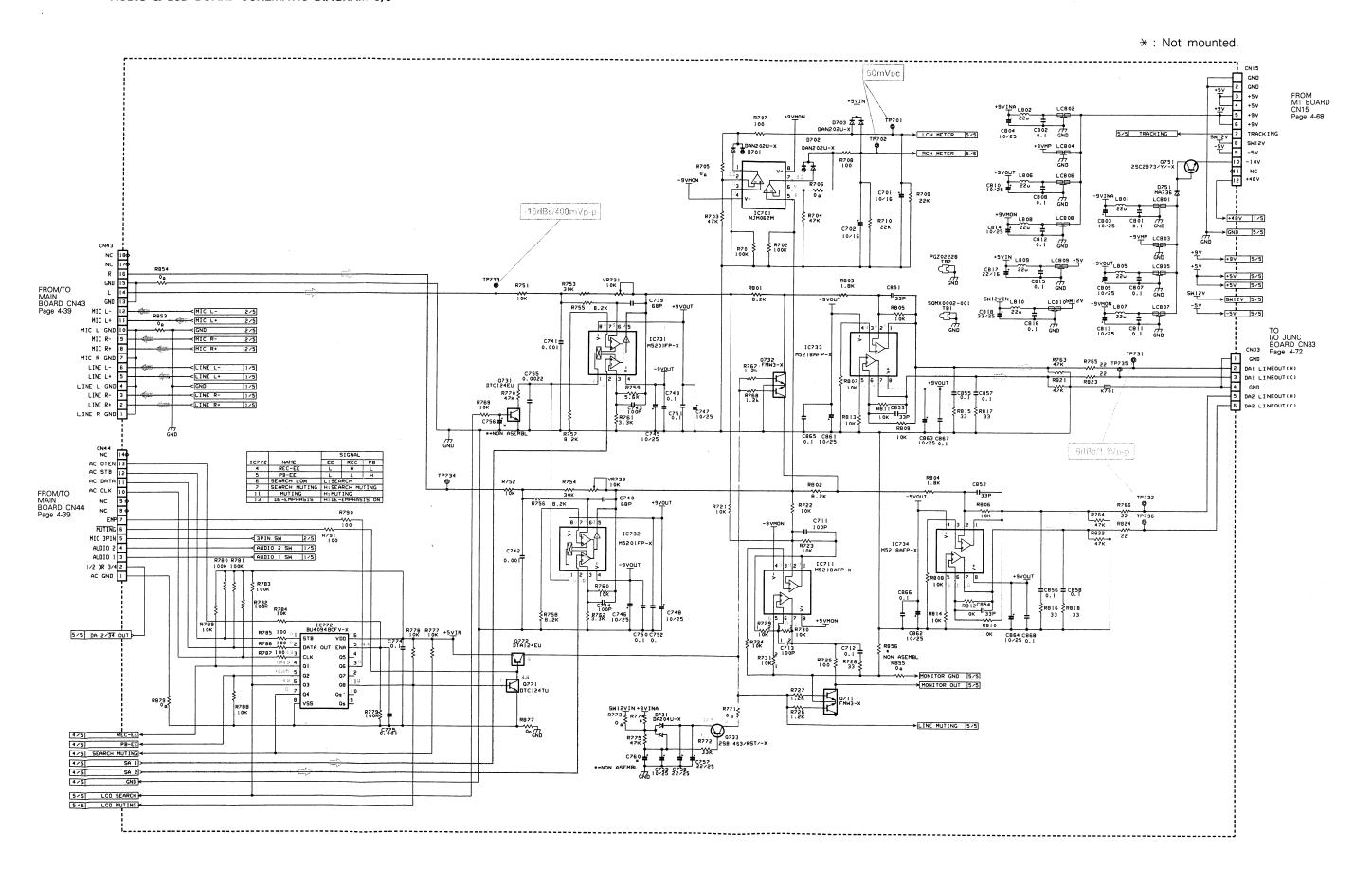
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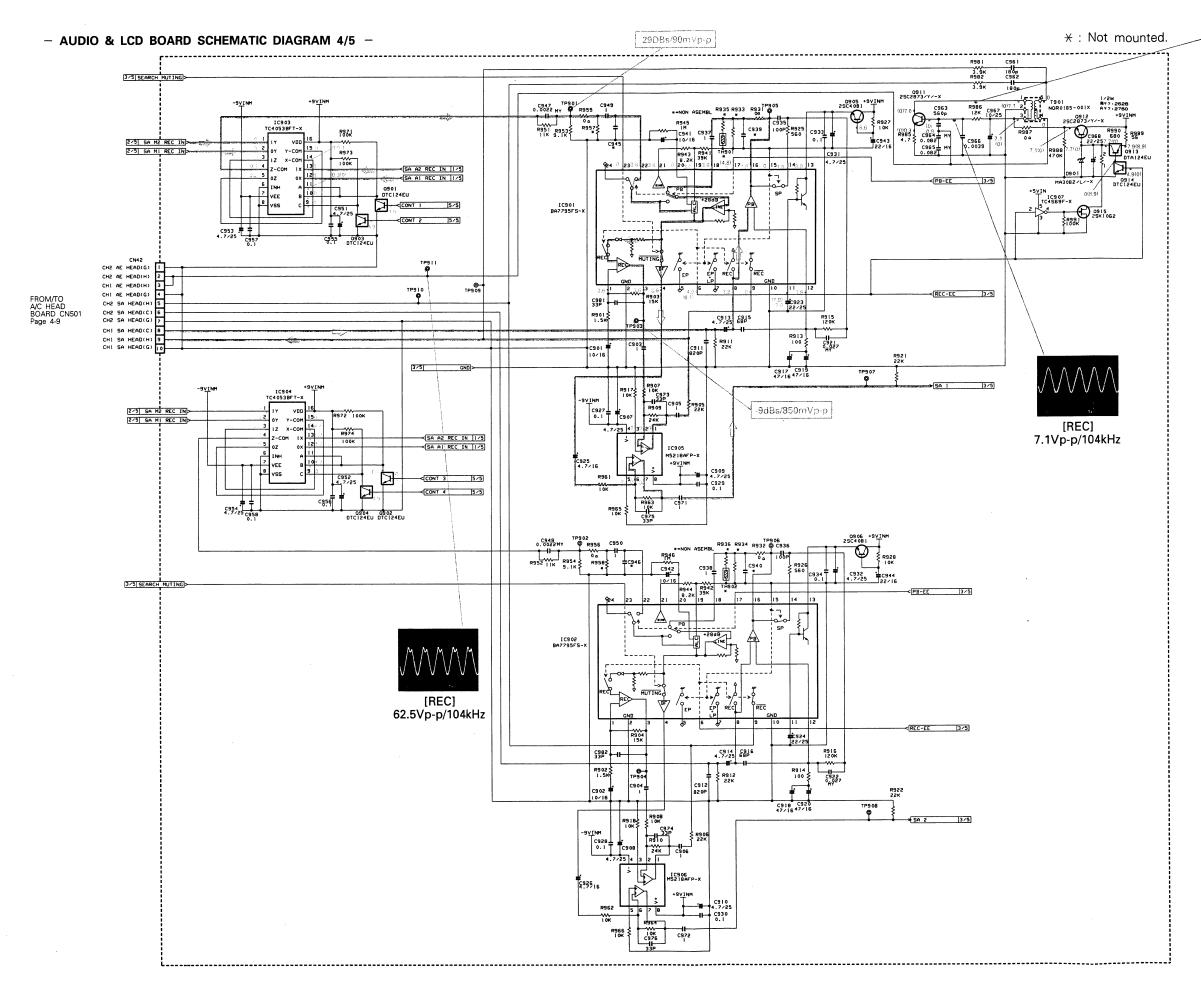


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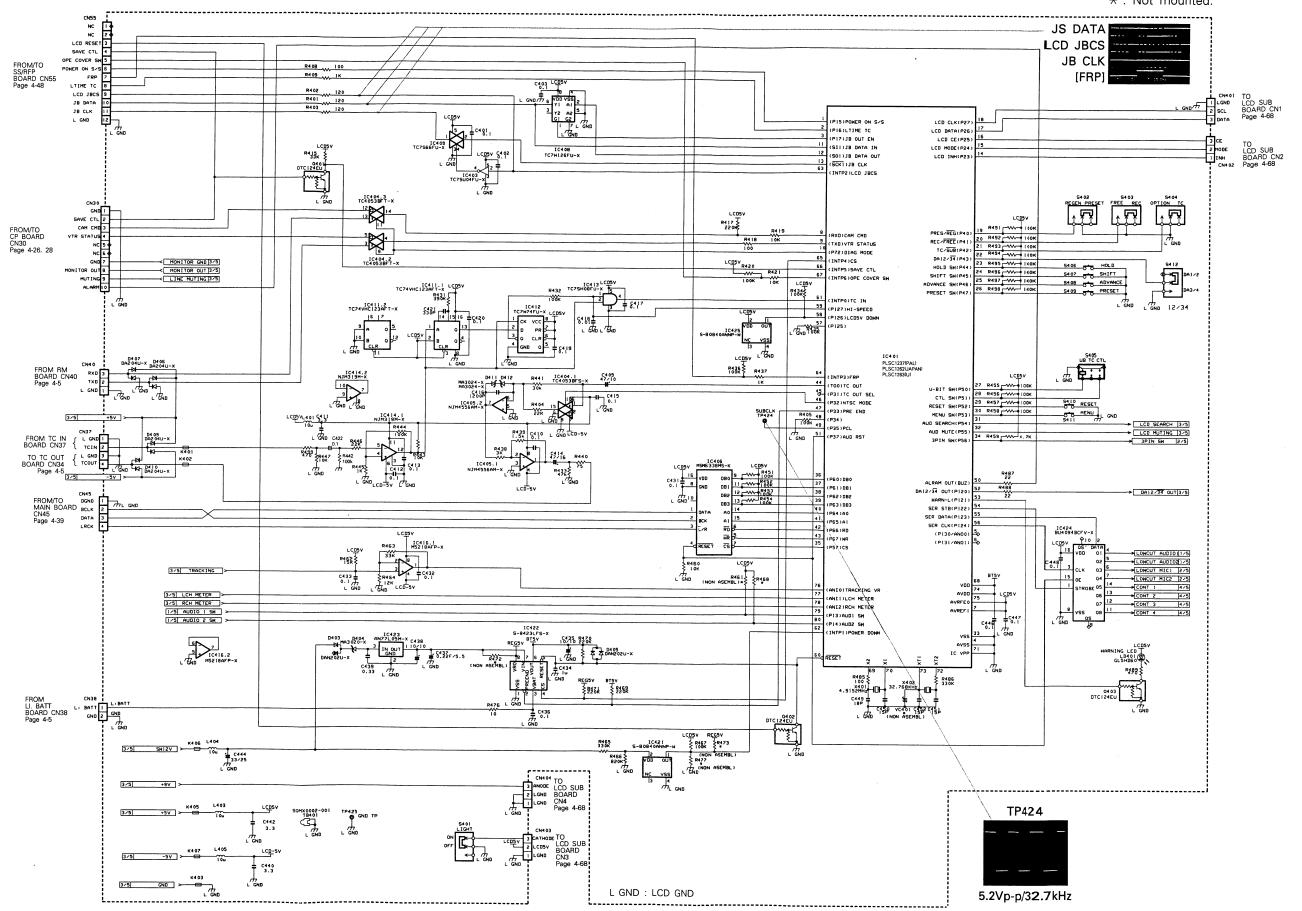




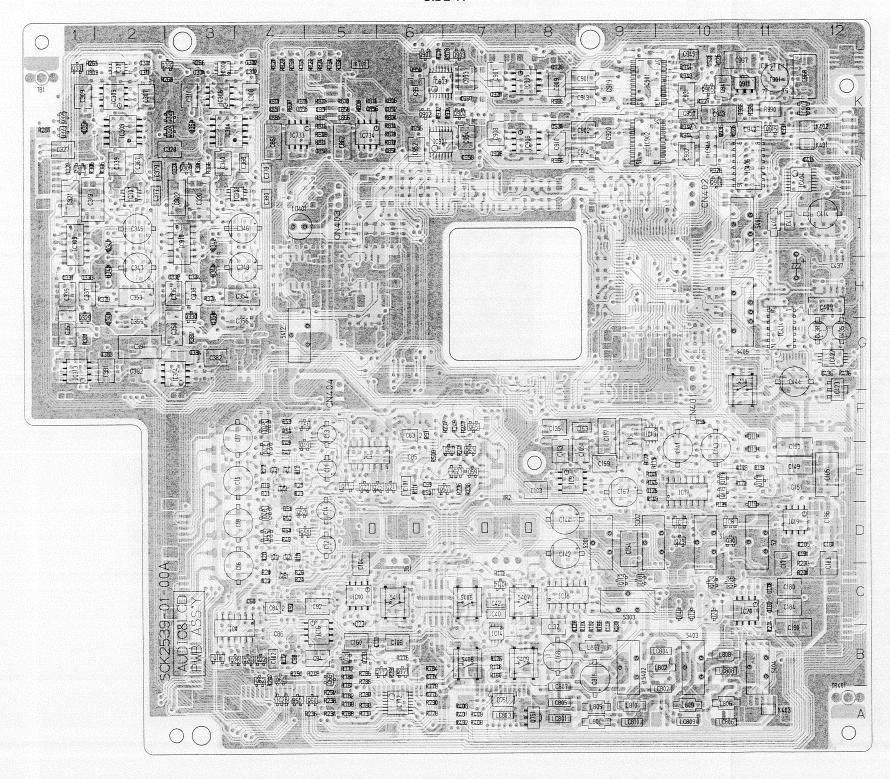




13.8Vp-p/104kHz



- SIDE A -

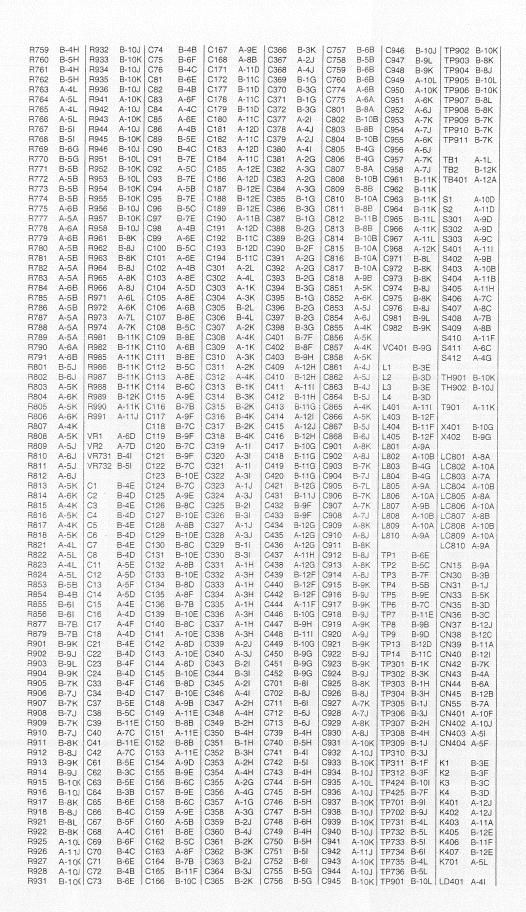


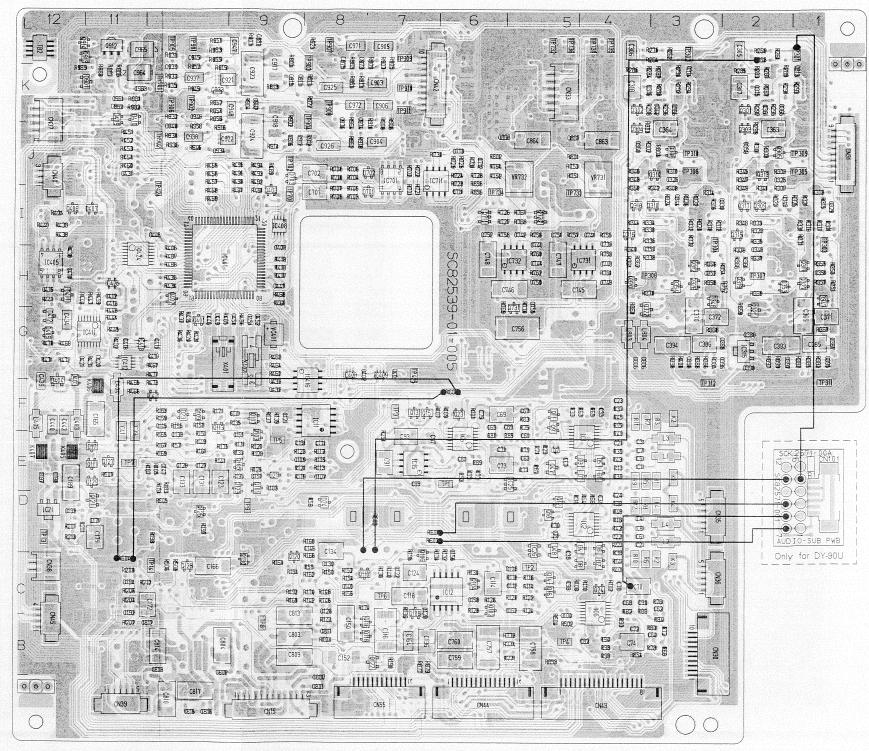
ADDRESS TABEL OF BOARD PARTS

Each address may have an address error by one interval.

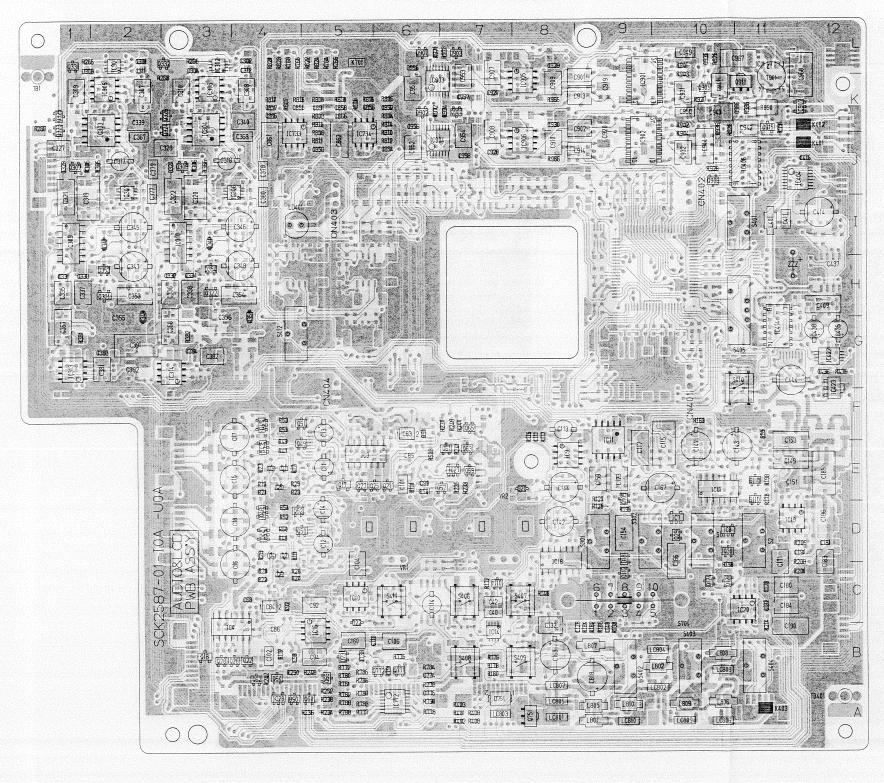
Side — Y axis X axis

	Oluc		A Production of the	X axis												
March Marc	IC1	B-4E	Q16	B-5C	Q323	A-1J					Property of the State of the					
Tell Fig. Tell																
166																
Column C			Q23	B-6F												
March Marc																
March Color Apple Color Apple Color Apple Color Apple Apple Color Apple Appl																
C15 B.7E C43									Control of the Contro							
														B-4H		
						B-5G	R20									
1.15																
										B-9E	R234	A-5A				
March Marc																
Carp A-FD Carp																
1.628 A.46 0.594 A.46 0.994 A.77 R.29 B.55 R.130 B.6C R.241 A.76 R.350 B.41 R.470 B.126 R.300 A.26 0.594 A.76 0.995 A.76 0.991 A.77 A.76 0.991 A.77															R469	
Case							R29		R130	B-6C						
1.500 1.50																
Cagno A-23 Ord A-7E Ord B-11 Ord B-12 Ord A-7E Ord Cagno A-7E Ord			inimas a lienes in lande													
Gago A8 Gago A8 Gago A9 Gago													R354			
G306 A3K G84 A4F G85 A7F G306 A3K G85 A1T G38 B4D R137 B40F R252 A5A R357 B3H R487 B40F G308 A41 G66 A58 G85 A5F G308 A41 G101 B45E D2 B4C R418 B4E R148 B47 R158 B40F R262 B43K R358 B40 B40 R363 B40 R	IC304			A-4B												
Color Colo																
					Q915	A-110										
10310 A-31 10102 B-86					D1	B-4E					R262	B-3K				
1988 1989																
C314 A-SF							Karaman da karana									
Ca10														B-2H		
16400 8-8F 10107 8-9F 108 8-4C 8-47 A-4E 8-48C 8-29F 8-22F 8-32F 8-39F 8-9F 10404 A-12J 0109 8-10F 0129 A-10C 8-49F A-4F 8-49C 8-278 8-32F 8-39F 8-9F 10406 A-12J 0110 8-8C 0133 A-11E 850 A-4B 8-48C 8-28F 8-28F 8-28F 8-278	IC315	B-2G	Q105	B-9E												
CAUGO B-12H CAUGO B-10F D12							(0.15) (2.0) (1.0) (1.0) (1.0)									B-91
CAUSE B-91 C111 B-11E D14 A-10C RS1 A-4F R150 B-8C R283 B-2K R370 B-4H R501 A-6E R160 B-7F R160 B-7F R286 B-4K R371 B-11 R502 A-6E R284 B-4K R373 B-2K R372 B-31 R502 B-5B R504 R374 R371 B-11 R504 A-6E R386 B-4K R373 B-2K R374 A-3H R505 B-10C R381 R381							R49	A-4E								
CAUSTING CAUSTING																
C411 B-11G C1113 B-10E D18 A-9C B53 A-4F R152 B-8C R285 B-2K R372 B-31 R503 A-6E C1212 B-11G C114 A-7C D19 A-11D R64 A-4D R153 B-10F R286 B-4K R373 A-3H R505 B-10E C1414 A-11G C116 B-8B D21 B-9E R56 B-8C R155 B-10F R286 B-4K R374 A-3H R505 B-10C C1414 A-11G C116 B-8B D21 B-9E R56 B-8C R155 B-10E R288 B-3K R381 A-1G R506 B-10C C1414 B-10F C118 B-8B D23 B-10F R58 B-8C R155 B-10E R288 B-3K R381 A-1G R506 B-10C C1422 A-12G C119 A-10E D24 A-5C R57 B-10E R156 B-8C R289 B-3K R383 B-1G R508 B-10C C1422 A-12G C119 A-10E D24 A-3B R508 B-10F R156 B-8C R289 B-3K R384 B-3G R507 B-7D C1423 A-12F C120 B-9C D341 A-2I R64 B-4D R161 B-10E R290 B-3K R383 B-1G R508 B-10C C1424 B-11H C121 B-11D D342 A-3I R65 B-4F R162 B-8C R293 B-1K R385 B-1G R602 B-7D C1425 B-1H C122 B-7B D343 A-2H R66 B-4D R163 B-10F R294 B-3K R385 B-1G R602 B-7D C1425 B-1H C123 B-8E C134 A-3H R67 B-5E R164 B-9C R295 B-2K R388 B-3G R601 B-7D C123 B-8F C125 B-10D D348 B-3H R71 B-8E R166 B-8C R297 B-2K R387 B-1G R604 B-1T C124 A-10C D347 B-1H R68 B-3B R165 B-10E R296 B-3K R387 B-2G R701 B-7I C731 B-8H C126 A-10C D347 A-2G R72 B-3B R165 B-10E R296 B-3K R387 B-2G R701 B-7I C731 B-4F C126 A-10C D347 A-2G R72 B-3B R165 B-10E R296 B-3K R387 B-2G R701 B-7I C731 B-4F C126 A-10C D347 A-2G R72 B-3B R165 B-10E R296 B-3K R397 B-2G R701 B-7I C731 B-4F C126 A-10C D347 A-2G R72 B-3B R165 B-10E R296 B-3K R397 B-2G R701 B-7I C731 B-4F C126 A-10C D347 A-2G R72 B-10E R304 B-3C R304 A-3H R304 B-3D R304 B-3D R304 B-3D																
C413 B-11G							R53	A-4F	R152							
C414 A-11G																
C416 B-8F			1													
C422											R289					
C423																
C424 B-11H C121 B-11D D342 A-3I R65 B-4F R162 B-8C R293 B-1K R386 B-3G R603 B-7D C425 B-11H C122 B-7B D343 A-2H R66 B-4D R163 B-10F R294 B-3K R387 B-1G R604 B-11C C701 B-7I C123 B-9E D344 A-3H R67 B-5E R164 B-9C R295 B-2K R388 B-3G R605 B-6F C711 B-7I C124 A-10C D347 B-1H R68 B-3B R165 B-10E R296 B-3K R397 B-2G R701 B-7I C731 B-5H C125 B-10D D348 B-3H R71 B-5E R166 B-8C R297 B-2K R398 B-3G R702 B-7J C732 B-6H C126 A-11C D349 A-2G R72 B-3B R167 B-10E R296 B-3K R398 B-3G R702 B-7J C733 A-5J C127 B-11E D350 A-3G R75 B-5E R168 B-9C R299 B-2J R400 B-3G R704 B-8I C773 A-6J C128 B-10C D351 A-1K R76 B-3C R169 B-10E R300 B-4J R401 A-7A R705 B-8I C774 A-6J C128 B-10C D352 A-3K R77 B-5E R168 B-9C R299 B-2J R400 B-3G R704 B-8I C902 A-9K C301 B-2K D358 B-2H R78 B-3B R171 B-10F R302 B-4J R402 A-7A R706 B-8J C903 A-6K C302 B-4K D403 B-12F R80 B-3B R173 A-11E R304 B-3J R405 B-10H R709 B-8I C904 A-6J C303 B-2J D404 B-12F R80 B-3B R173 A-11E R304 B-3J R408 A-7A R710 B-8I C905 A-8K C304 B-4J D405 B-126 R82 B-4C R175 B-10E R306 A-3J R409 A-7A R710 B-8I C906 A-8K C306 B-3J D407 B-11I R84 B-3B R177 A-9E R308 B-3J R417 B-9H R722 B-6J C109 A-4E C308 B-3J D407 B-11I R84 B-3B R177 A-9E R308 B-3J R417 B-9H R722 B-6J C109 A-4E C308 A-3J D407 B-11I R84 B-3B R177 A-9E R308 B-3J R417 B-9H R724 B-6J C109 A-4E C308 B-3J D410 B-11J R86 B-6E R180 A-7B R311 B-1I R420 B-10G R726 B-6J C109 A-4E C308 B-3J D410 B-11J R86 B-6E R180 A-7B R311 B-1I R420 B-9H																
C-25																B-7D
C711 B-71 C124 A-10C D347 B-1H R68 B-3B R165 B-10E R296 B-3K R397 B-2G R701 B-71 C731 B-5H C125 B-10D D348 B-3H R71 B-5E R166 B-8C R297 B-2K R398 B-3G R702 B-7J C732 B-6H C126 A-11C D349 A-2G R72 B-3B R167 B-10E R298 B-4K R399 B-2G R703 B-8I C733 A-5J C127 B-11E D350 A-3G R75 B-5E R168 B-9C R299 B-2J R400 B-3G R704 B-8I C734 A-6J C128 B-10C D351 A-1K R76 B-3C R169 B-10E R300 B-4J R401 A-7A R706 B-8I C772 A-6A C129 B-11E D352 A-3K R77 B-5E R170 B-8C R301 B-2J R402 A-7A R706 B-8I C1901 A-9L C130 B-9C D353 B-2H R78 B-3B R171 B-10E R302 B-4J R402 A-7A R706 B-8J C1902 A-9K C301 B-2K D403 B-12F R80 B-3B R173 A-11E R304 B-3J R405 B-10H R709 B-8I C1904 A-6J C303 B-2J D404 B-12F R81 B-6E R174 B-8C R305 A-1J R408 A-7A R710 B-8I C1906 A-8J C306 B-3J D406 B-12I R83 B-5E R176 A-7B R307 B-2I R415 B-10G R722 B-7J C1907 A-12K C306 B-3J D407 B-11J R84 B-3B R177 A-9E R300 B-2J R415 B-10G R722 B-7J C190 A-4E C310 B-3I D411 B-12H R89 B-6E R178 A-7B R301 B-2J R415 B-10G R722 B-7J C190 A-4E C310 B-3I D412 B-12G R90 B-4B R185 B-10E R316 B-3I R433 B-11 R433 B-11G R728 B-6J C190 B-5E C314 B-3J D702 B-7J R92 A-4C R183 B-10E R316 B-3I R434 B-3J R436 B-10H R731 B-6J C190 B-5E C314 B-3J D703 B-9I R38 B-6E R186 A-9B R317 B-11 R435 B-10H R731 B-6J C190 B-5E C314 B-3J D703 B-9I R38 B-6E R186 A-9B R317 B-11 R435 B-10H R731 B-6J C190 B-5E C314 B-3J D703 B-9I R38 B-6E R186 A-9B R317 B-11 R435 B-10H R731 B-6J C190 B-5E C314 B-3J D703 B-9I R38 B-6E R186 A-9B R317 B-11 R436 B-10H				B-7B	D343	A-2H	R66									
C731 B-5H C125 B-10D D348 B-3H R71 B-5E R166 B-8C R297 B-2K R398 B-3G R702 B-7J R703 B-8I R704 B-8I R703 B-8I R704 B-8I R705 B-8I R704 B-8I R707 B-8I R708 B-8I R708 B-8I R708 B-8I R708 B-8I R708 B-8I R708 B-8I R709 B-8I																
C732 B-6H Q126 A-11C D349 A-2G R72 B-3B R167 B-10E R298 B-4K R399 B-2G R703 B-8I C733 A-5J Q127 B-11E D350 A-3G R75 B-5E R168 B-9C R299 B-2J R400 B-3G R704 B-8I C734 A-6J Q128 B-10C D351 A-1K R76 B-3C R169 B-10E R300 B-4J R401 A-7A R705 B-8I C772 A-6A Q129 B-11E D352 A-3K R77 B-5E R170 B-8C R301 B-2J R402 A-7A R706 B-8J C7902 A-9K Q301 B-2K D354 B-3H R79 B-5E R170 B-8C R301 B-2J R402 A-7A R706 B-8J C7904 A-6J Q302 B-4K D403 B-12F R80 B-3B R171 B-10F R302 B-4J R403 A-7A R706 B-8J R708 B-8J R172 A-7C R303 B-2J R404 A-7A R706 B-8J R708 R170 R17																
C734 A-6J C128 B-10C D351 A-1K R76 B-3C R169 B-10E R300 B-4J R401 A-7A R705 B-8I R777 A-6A C129 B-11E D352 A-3K R77 B-5E R170 B-8C R301 B-2J R402 A-7A R706 B-8J R709 A-8L R709 A-8L R78 B-3B R171 B-10F R302 B-4J R402 A-7A R706 B-8J R709 A-8L R78 B-3B R171 B-10F R302 B-4J R402 A-7A R707 B-8I R709 B-8I R709 B-8I R709 B-8J R709																
C772																
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C902 A-9K Q301 B-2K D354 B-3H R79 B-5E R172 A-7C R303 B-2J R404 B-12 R708 B-3I R709 B-8 R709 A-6K Q302 B-4K D403 B-12F R80 B-3B R173 A-11E R304 B-3J R405 B-10H R709 B-8 R1094 A-6J Q303 B-2J D404 B-12F R81 B-6E R174 B-8C R305 A-JJ R408 A-7A R710 B-8 R1096 A-8J Q305 B-2J D406 B-12F R83 B-5F R176 B-10E R306 A-3J R409 A-7A R710 B-8 R1709 A-12K Q306 B-3J D407 B-11I R84 B-3B R177 A-9E R308 B-3I R417 B-9H R723 B-6 R726 B-6J R307 B-2I R415 B-10E R307 B-2I R415 B-10E R308 A-7B R309 B-2J R418 B-9H R724 B-6J R308 A-3J R409 A-7A R710 B-8 R309 B-2J R418 B-9H R724 B-6J R308 B-3B R310 B-3J R419 B-9H R725 B-6J R308 B-3J R419 B-9H R328 B-6J R308 B-3J R429 B-9K R328 B-6J R328 R338 B-1J R438 B-1J R338 B-1J															R707	B-8I
C904 A-6J Q303 B-2J D404 B-12F R81 B-6E R174 B-8C R305 A-1J R408 A-7A R710 B-8I C905 A-8K Q304 B-4J D405 B-12G R82 B-4C R175 B-10E R306 A-3J R409 A-7A R721 B-7I R506 A-8J C906 A-8J C306 B-2J D406 B-12I R83 B-5F R176 A-7B R307 B-2I R415 B-10G R722 B-7J R506 R506	IC902	A-9K	Q301	B-2K												
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Q9 B-5E Q316 B-4I D901 B-12K R96 B-4B R187 B-11E R318 B-3I R436 B-10G R752 B-6J Q10 B-5D Q317 B-2I R97 B-6E R188 A-9B R319 B-1I R437 B-10G R752 B-6J Q11 B-5F Q318 B-4I R1 B-3E R98 B-4B R189 A-10D R320 B-3I R438 B-12H R754 B-6J Q12 B-5D Q319 B-2H R2 B-3C R101 B-6F R190 B-7B R320 B-3I R439 B-12I R755 B-4I Q13 B-7F Q320 B-4H R3 B-3F R102 B-4C R191 A-11E R322 B-3I R440 B-12I R756 B-5I Q14 B-5C Q321 B-2G R4 B-3D R103 B-9E R192 B-9C R	Q7	B-5E	Q314	B-3J	D731	A-5B	R94	B-4B	R185	B-10E	R316	B-31				
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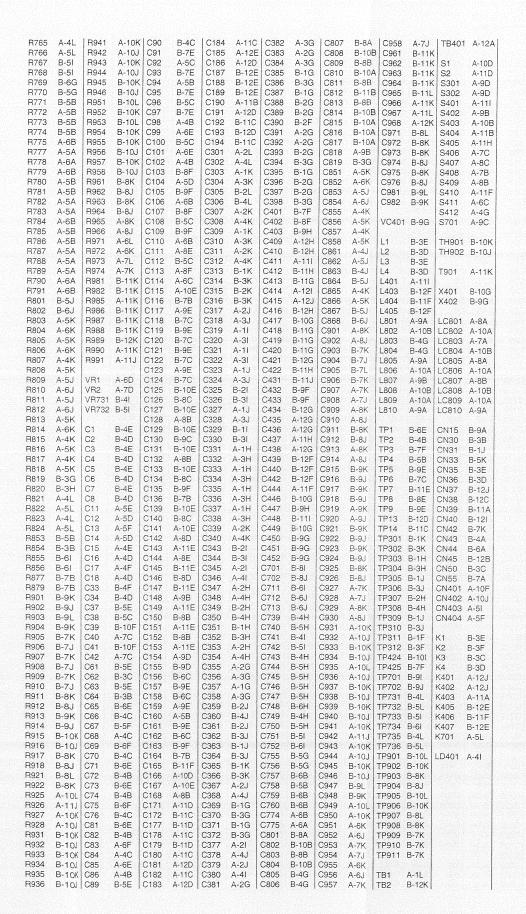
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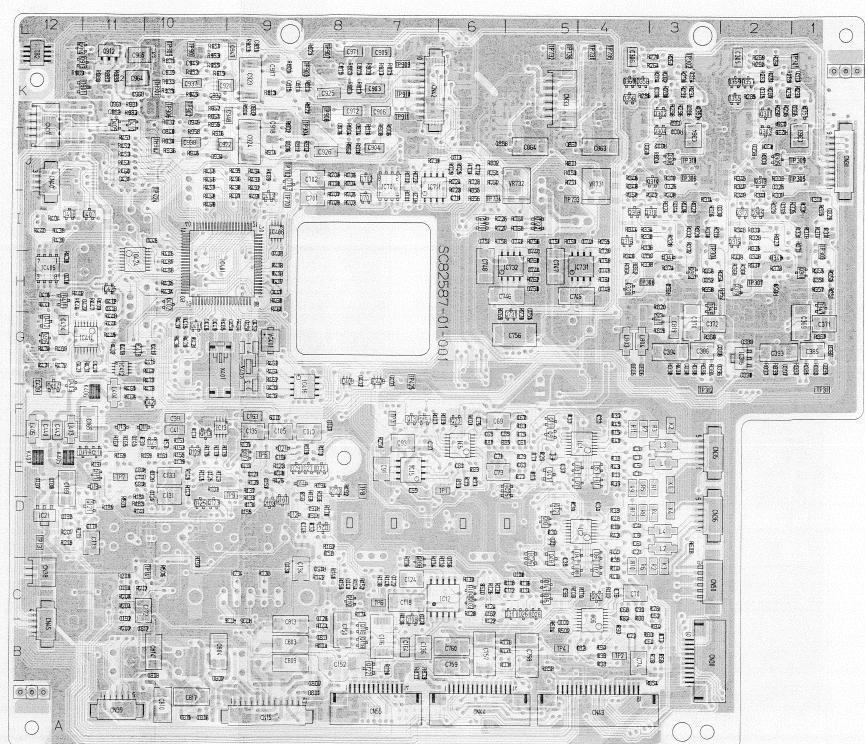


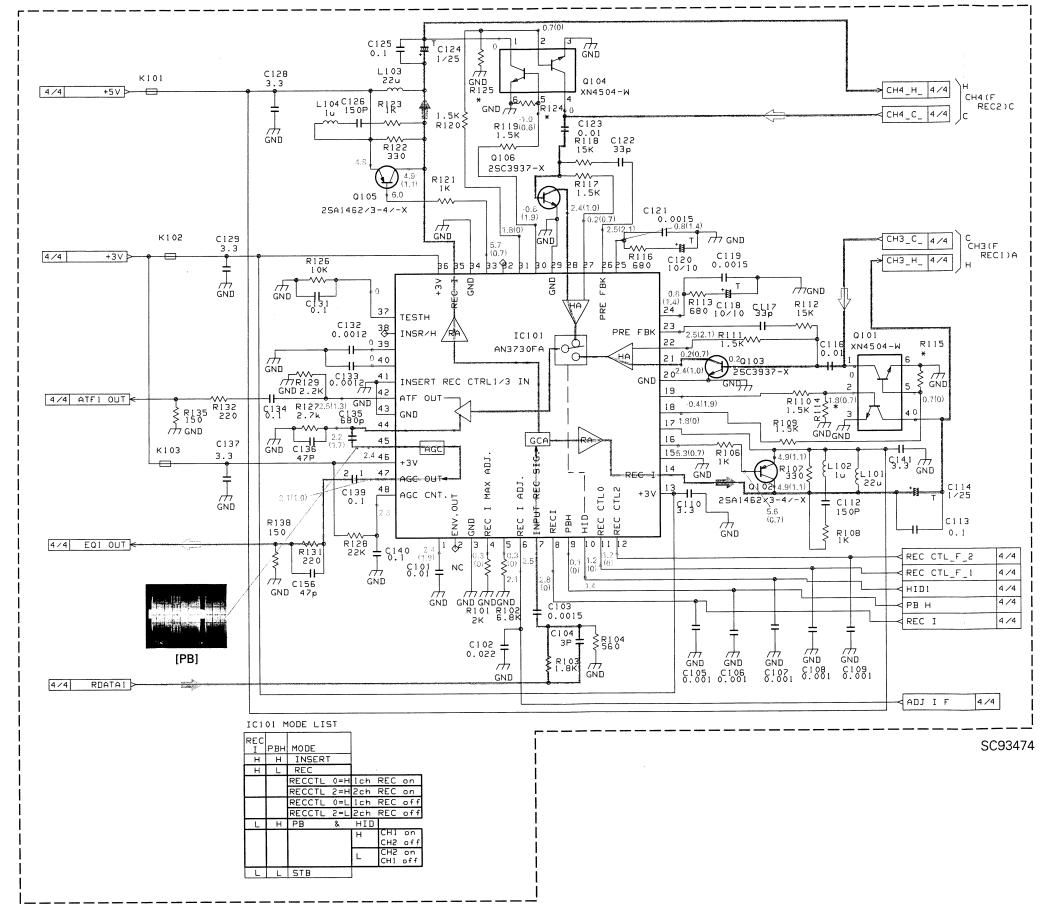
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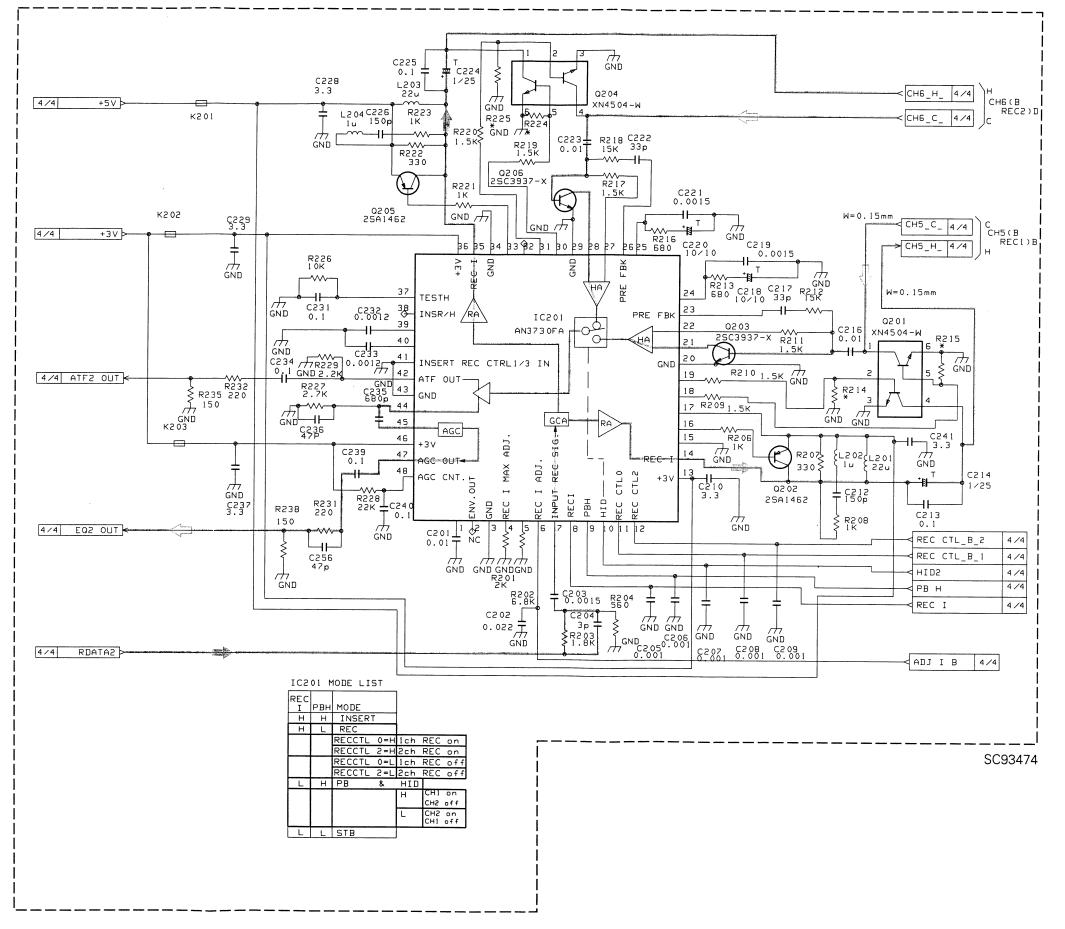
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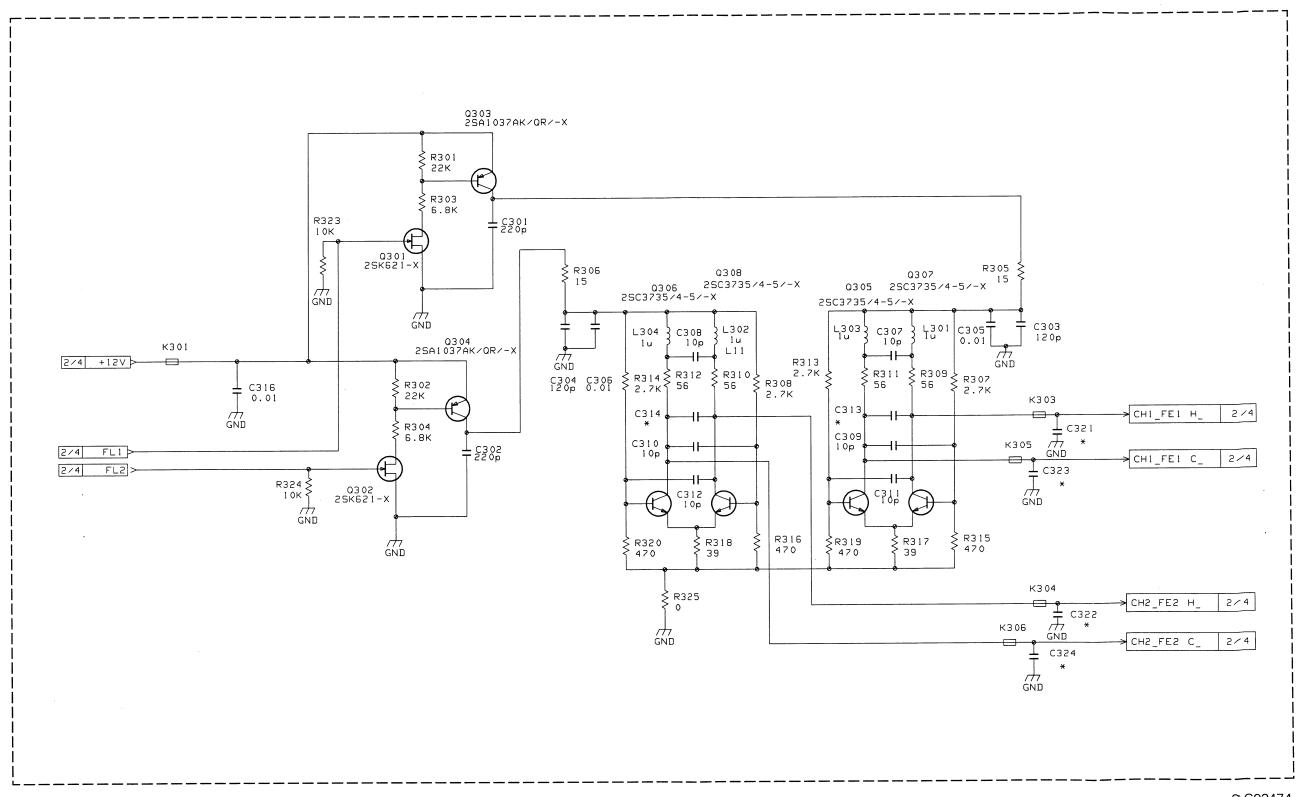
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B-3H R58
A-2G R67
A-4G R68 A-3J B-1G B-3G B-91 B-11F R366 R498 R367 R368 R499 A-6E R371 R372 R373 B-5B A-6E B-5B B-11 B-31 B-2H R502 B503 R374 R381 R382 B-3H A-1G A-3G R505 B-10E D26 A-7C D27 A-11E D28 R506 3603 R383 R384 R385 B-1G B-3G B-1G B-7I B-7J B-8B D29 B-11E D30 B-8B D341 A-11E D342 B-8E D343 R701 R702 R703 H386 H387 H388 R704 R705 A-11E B-8E B-11D B-7B B-10D B-8I B-8I B-1G B-3G R706 B-8J D344 D347 D348 D349 R707 R708 B-8I B-8J R397 B-2G R398 R399 B-3G B-2G R709 A-10C R400 R401 R402 B-3G A-7A A-7A R710 R721 R722 B-10D D350 A-11C D351 B-2K D352 B-3K D353 B-2J D354 B-81 B-71 IC731 B-5H IC732 B-6H IC733 A-5J IC772 A-6A IC901 A-9L IC902 A-9K IC903 A-6K IC904 A-6J IC905 A-8K IC906 A-8J B-1K H/1 B-3K R72 A-2H R75 A-3H R76 B-2K R77 B-4K R78 B-2K R79 B-4K R80 B-2K R81 B-4K R82 A-7A R723 1 B-12I R724 E B-10H R725 A-74 B-3B B-5E B-3C B-5E B-3B B-5E B-4C B-5F B-3B B-5E B-4C B-6E B-4C B-6E A-4C R168 R169 R170 R171 R172 R173 R174 R175 R176 R177 R178 R179 R180 R181 R403 R404 R405 B-61 B-6J Q302 Q303 B-3J B-2J B-3J B-8D R302 B-10E R303 A-7C R304 B-6J D355 D356 D357 Q304 B-3J R408 R409 R415 A-7A A-7A B-10G R726 R727 B-61 B-61 Q305 B-2J Q306 B-3J A-1J A-3J B-2l B-3l B-2J B-3J A-11E R305 B-8C R306 B-10E R307 R728 B-6J Q307 A-1J D358 R417 R418 R419 A-3J B-2I B-9H R729 B-6J B-7J D359 D360 Q308 Q309 B-9H B730 A-7B R308 B-9H R731 D403 D404 D405 B-12F R83 B-12F R84 B-12G R85 B-10E R309 A-7B R310 Q310 B-31 B-10G R733 B-10G R734 B-9C B-9C R420 IC907 A-12K Q311 Q312 B-1H B-9E R311 A-7B R312 B-11E R313 R421 R431 B-11 B-31 B-11 B-3H B-11G R735 A-4E A-4D A-4E D406 D407 D409 R86 R89 R90 Q313 B-2J B-12I B-11I R736 R751 B-9C B-5J R432 B-11G Q314 B-3J R182 A-9B R314 R183 B-11D R315 R184 A-9B R316 R433 R434 B-12l B-10H Q315 B-2I B-3I B-1I R752 D410 D411 D412 B-11J R91 B-12H R92 A-4D Q316 B-4I B-31 R435 B-10H R753 B-5. A-4E A-4C Q317 Q318 B-21 B-41 R185 B-11E R186 A-9B R187 B-11E R436 R437 B-10G R754 B-6. B-12G R93 B-6E R317 B-6E R185 B-11E R317
B-4B R186 A-9B R318
B-6E R187 B-11E R319
B-4B R188 A-9B R320
B-6E R189 B-11D R321
B-4B R190 B-7B R322
B-6F R191 B-11E R323
B-10E R193 A-11E R325 B-5E B-5D B-5E B-5D B-5F B-5D B-10G R755 D701 D702 B-7I B-7J Q319 B-2H R94 R95 B-3I B-1I R438 B-12H R756 R757 B-51 B-51 Q320 Q321 B-4H R439 R440 B-12I B-12I A-2H D703 R96 R758 B-61 D731 D751 A-5B A-7A R97 R98 B-11 Q322 А-ЗН B-4H B-5H B-31 R441 B-12H R759 A-1J Q323 B-12H R760 B-11G R761 Q324 A-3J D901 R101 B-21 R442 A-1K A-3K R443 B-7F B-5C R102 R103 B-3I B-1I R1 R2 R3 B-3E R444 B-11G R762 R763 B-5H Q326 R194 B-8E R326 R195 A-9D R327 Q331 A-1K R104 B-8B B-31 B445 B-11G A-41 R446 B-12H R764 B-3F R107 B-6F B-21



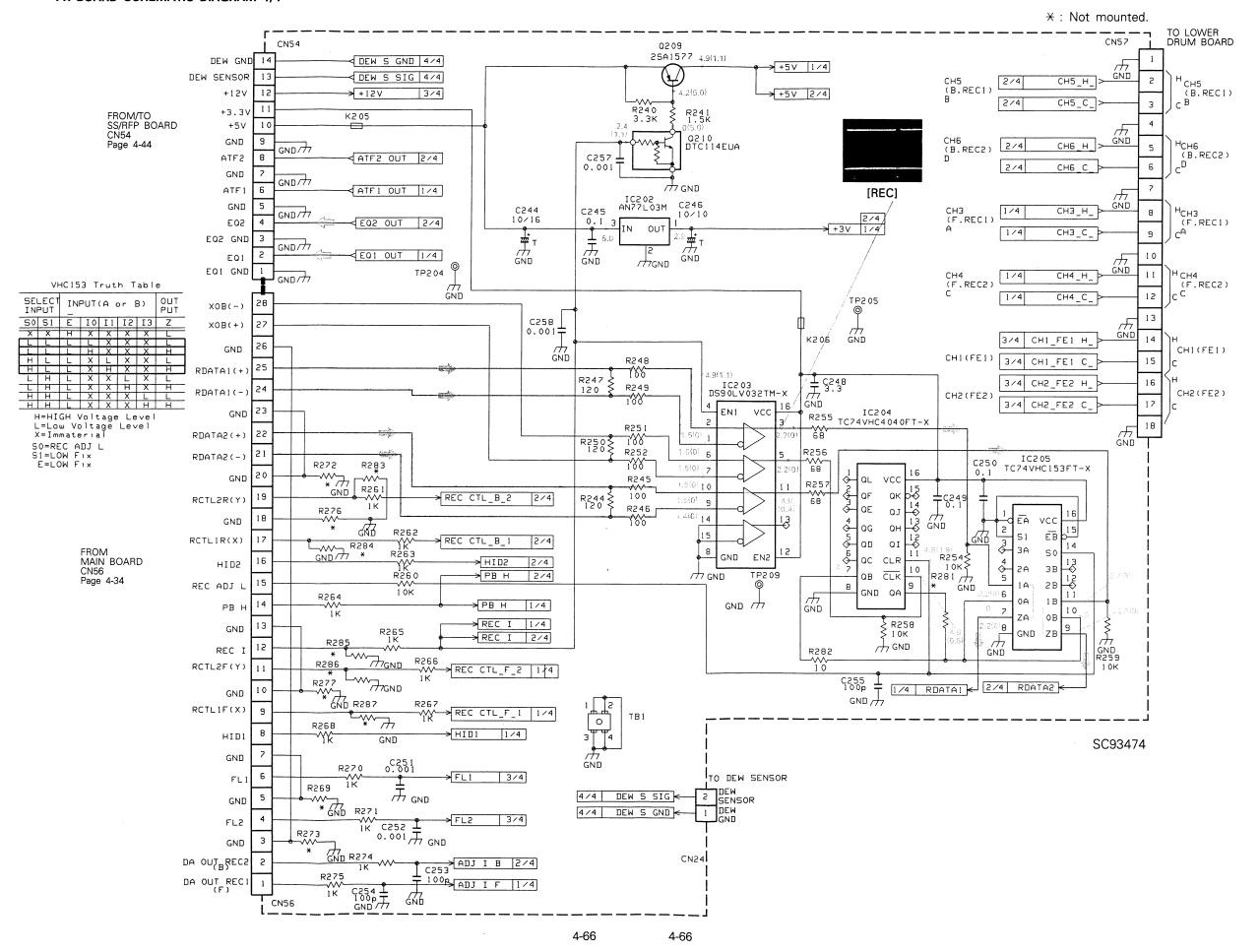




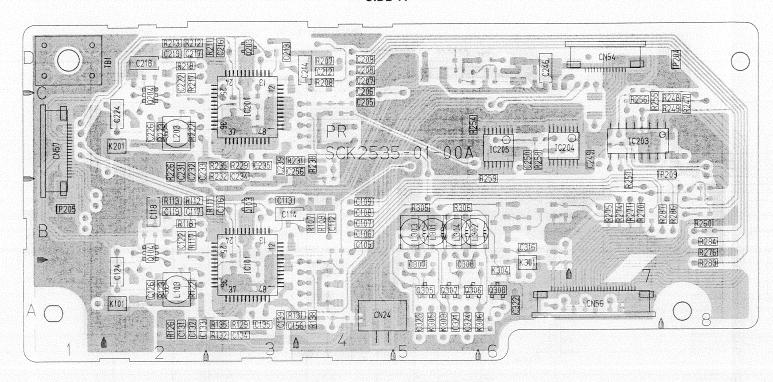




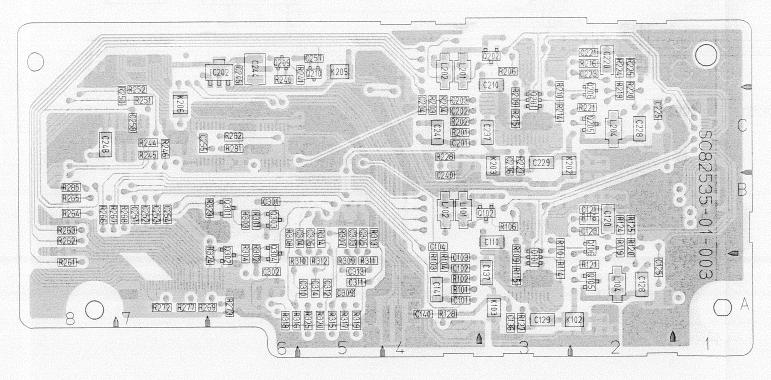
S C93474



- SIDE A -



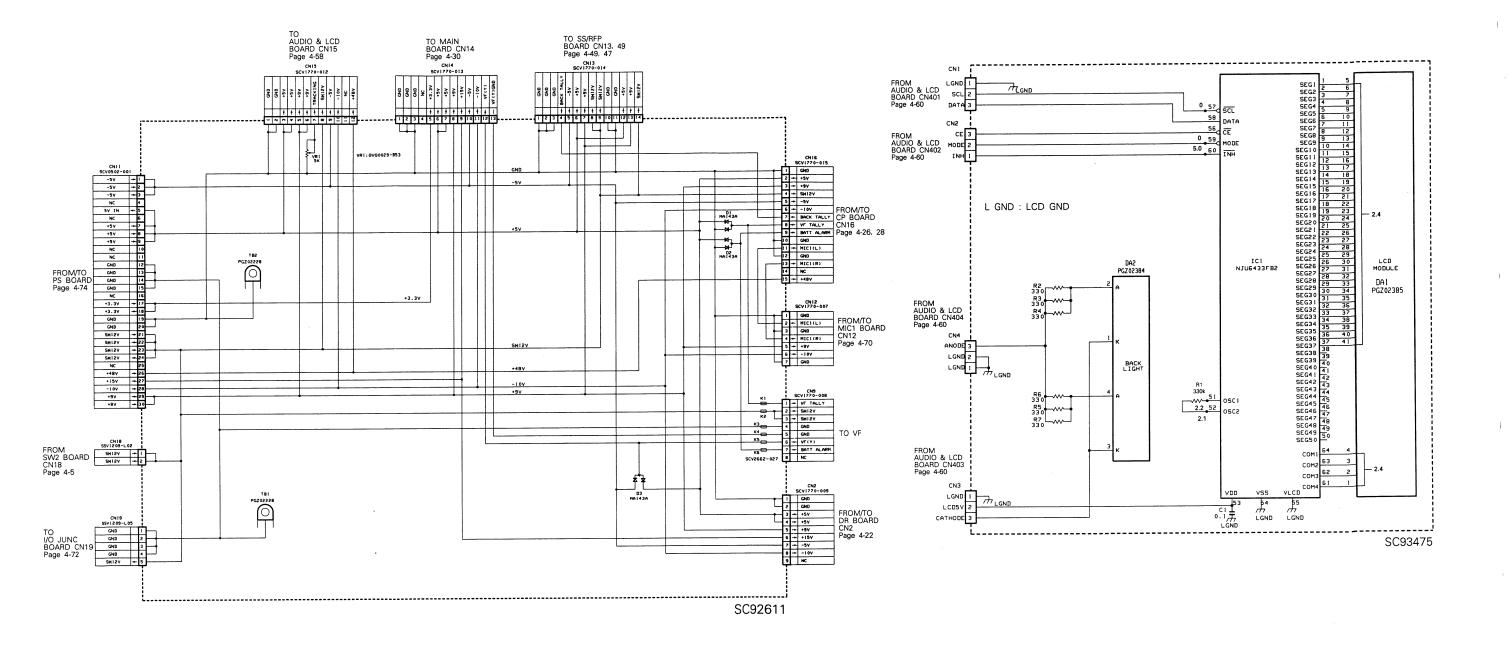
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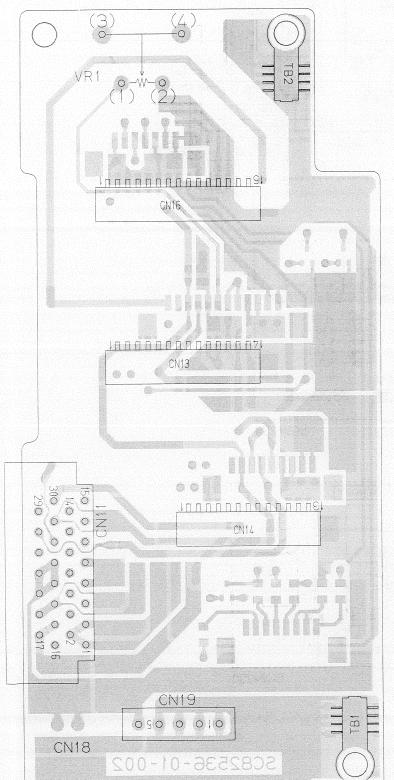
● ADDRESS TABEL OF BOARD PARTS

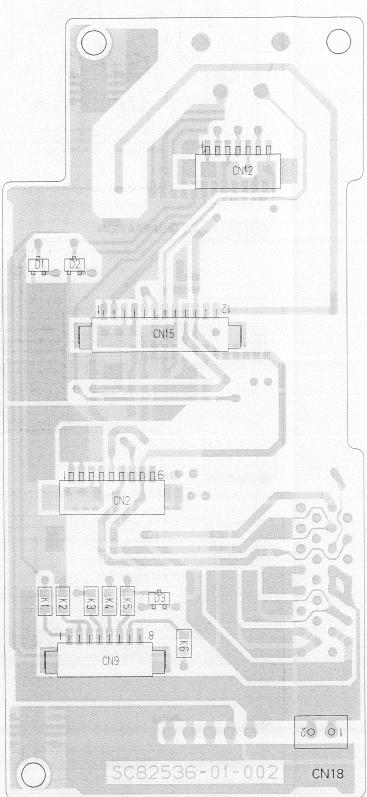
Each address may have an address error by one interval.

L	——X axis		
IC101 A-3A IC201 A-3C IC202 B-6C IC203 A-7B IC204 A-6B IC205 A-6B IC205 A-6B Q101 B-3A Q102 B-3B Q103 A-3B Q104 A-2A Q105 B-2A Q106 B-2A Q201 B-3C Q202 B-3C Q203 A-3C Q204 A-2C Q205 B-2C Q206 B-2C Q206 B-2C Q206 B-2C Q209 B-6C Q210 B-5C Q301 B-6B Q302 B-6A Q303 B-6B Q304 B-6A	R216 B-2C R217 A-2C R218 A-2C R218 B-2C R220 B-2C R221 B-2C R221 B-2C R222 A-2C R223 A-2C R225 B-2C R226 A-2B R227 B-3B R227 B-3B R228 B-4B R229 A-3B R231 A-3B R231 A-3B R232 A-3B R232 A-3B R235 A-3B R236 A-4B R240 B-6C R241 B-5C R244 B-7B R246 B-7B R247 A-8C R248 A-7C	R317 B-5A R318 B-6A R319 B-5A R320 B-5A R322 B-6B R324 B-6A R325 B-5A C101 B-4A C102 B-4A C103 B-4A C104 B-4A C105 A-4B C106 A-4B C107 A-4B C108 A-4B C109 A-4B C110 B-3A C112 A-4B C110 B-3A C112 A-4B C111 A-3B C114 A-3B C115 A-2B C116 A-2B C117 A-2B C118 A-2B C119 A-2B	C236 B-3B C237 B-3B C239 A-3B C240 B-4B C241 B-4B C241 B-6C C245 B-6C C246 A-6C C248 B-7B C250 A-6B C251 B-7B C252 B-7B C253 B-7B C253 B-7B C254 B-7B C255 B-6B C255 B-6B C256 A-3B C257 B-5C C258 B-7C C301 B-6B C302 B-6A C303 B-5B C304 B-5B C305 B-5B C306 B-5B C307 A-5A
Q305 A-5A Q306 A-5A Q307 A-5A Q308 A-6A R101 B-4A R102 B-4A R103 B-4A R104 B-4A R106 B-3B R107 A-4B R108 A-4B R109 B-3A R111 A-2B R112 A-2B R113 A-2B R114 B-3A R115 B-3A R116 B-2B R117 A-2B R118 A-2B R118 A-2B R119 B-2A R120 B-2A R120 B-2A R121 B-2A R121 B-2A R121 B-2A R122 A-2A R122 A-2A R123 A-2A R124 B-2B R125 B-2B R126 A-2A R127 B-3A R128 B-4A	R249 A-7C R250 B-7C R251 B-7C R252 B-7C R255 A-7C R256 A-7C R257 A-7B R258 A-6B R260 A-8B R261 B-8B R262 B-8B R264 B-8B R265 B-8B R266 B-7B R268 B-7B R271 A-7B R271 A-7B R271 A-7B R271 B-6A R273 B-6A R274 A-7B R275 A-7B R275 A-7B R276 A-8A R277 B-7A R271 B-6B R268 B-6A R277 B-7A R273 B-6A R277 B-7A R273 B-6A R274 A-7B R275 A-7B R276 A-8A R277 B-7A R281 B-6B R282 B-6B R283 A-8A R284 A-8B R288 A	C120 B-2B C121 B-2B C122 A-2B C122 A-2B C123 B-2B C124 A-1A C125 B-1A C126 A-2A C129 B-3A C131 A-2A C132 A-2A C132 A-2A C133 A-2A C135 A-3A C136 B-3A C137 B-3A C137 B-3A C139 A-3A C136 B-3A C137 B-3A C137 B-3A C139 A-3A C130 B-4C C201 B-4B C202 B-4C C203 B-4C C203 B-4C C204 B-4C C206 A-4C C206 A-4C C207 A-4C C208 A-4C C208 A-4C C209 A-4C C201 B-3C C212 A-4C C211 B-3C C211 A-4C	C307 A-5A C308 A-5A C308 B-5A C310 B-5A C311 B-5A C312 B-5A C312 B-5A C313 B-5A C314 B-5A C314 B-5A C316 A-6A C321 A-5A C322 A-6A C322 A-6A C323 A-5A L101 B-4B L102 B-4B L103 A-2A L201 B-4C L202 B-4C L203 A-2C L204 B-2C L301 A-5B L302 A-5B L302 A-5B L303 A-5B L304 A-5B L302 B-2A K101 B-3A K201 A-1B K202 B-2A K103 B-3A K201 A-1B K202 B-2B
R129 A-3A R131 A-3A R132 A-3A R135 A-3A R138 A-4A R201 B-4B R202 B-4C R203 B-4C R204 B-4C R206 B-3C R207 A-4C R208 A-4C R209 B-3C R211 B-3C R211 A-2C R211 A-2C R212 A-2C R214 B-3C R215 B-3C	R285 B-8B R286 A-8B R287 A-7B R301 B-6B R302 B-6A R303 B-6B R304 B-6A R305 A-5B R306 A-5B R307 B-5B R308 B-5A R310 B-5A R311 B-5A R311 B-5A R311 B-5A R313 B-5B R314 B-5B R314 B-5B R315 B-5A	C214 A-4C C216 A-3C C217 A-2C C218 A-2C C219 A-2C C220 B-2C C221 B-2C C222 A-2C C223 B-2C C224 A-1C C225 B-1C C226 A-2C C228 B-2C C228 B-2C C228 A-2C C228 A-2C C228 A-2C C228 A-3B C231 A-2B C232 A-2B C233 A-2B C234 A-3B C235 A-3B	K203 B-3B K205 B-5C K206 B-7C K301 A-6A K303 A-5A K304 A-6A K305 A-5A K306 A-5A CN24 A-4A CN54 A-7C CN56 A-7A CN57 A-1B



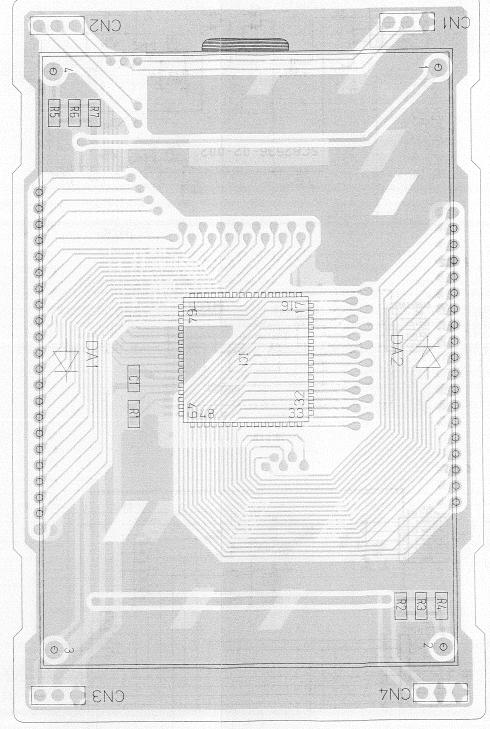
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SC82536-01-002

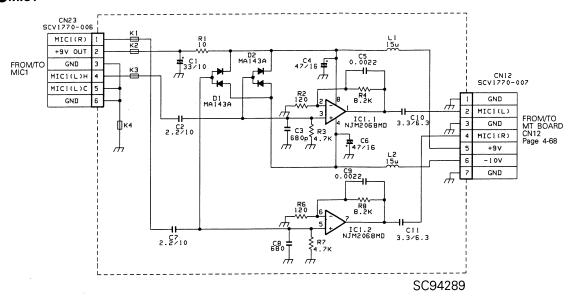
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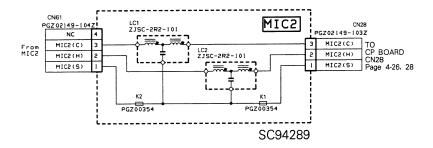
SC82536-02-002

4.29 MIC1 13, MIC 241, SW1 24, SW4 27, OPERATIN 14, MEMORY 40, CN 38BOARD SCHEMATIC DIAGRAMS

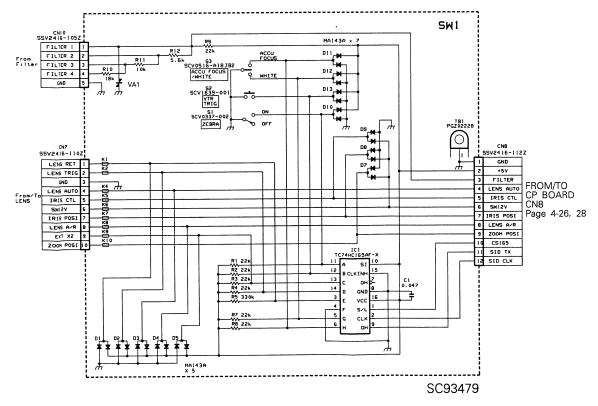
●MIC1



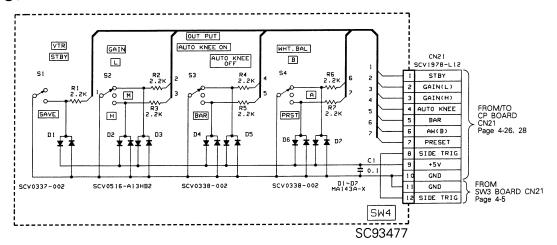
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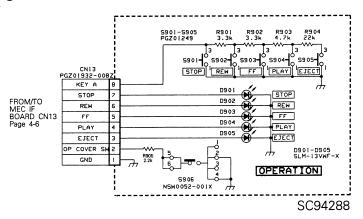
●SW1



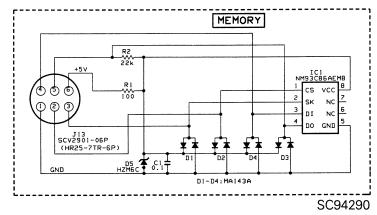
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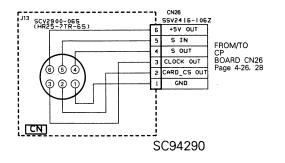
OPERATION



●MEMORY



●CN

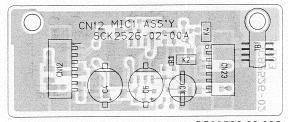


4-70

4-70

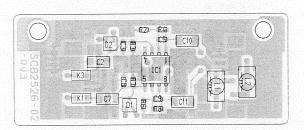
●MIC1

- SIDE A -



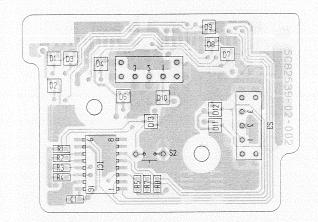
SC82526-02-003

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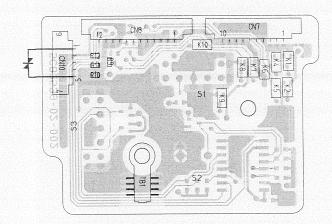


©SW1

- SIDE A -

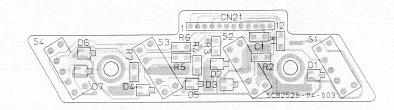


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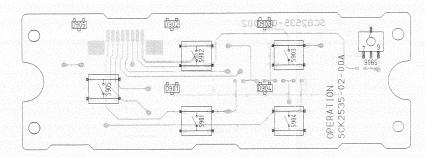
⊚SW4

- SIDE B -

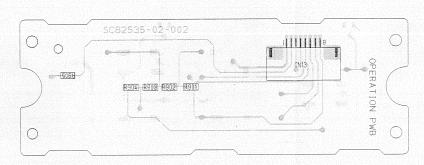


OPERATION

- SIDE A -



- SIDE B -

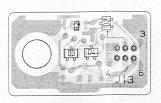


SL82078-002

MEMORY

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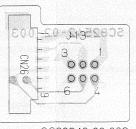




SC82542-01-003

CN

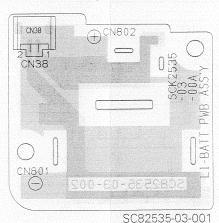
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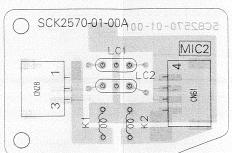
OLI-BATT

- SIDE A -

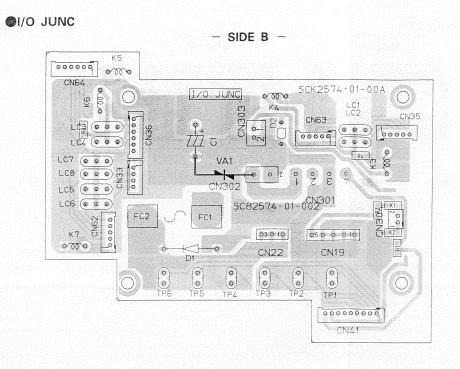


●MIC2

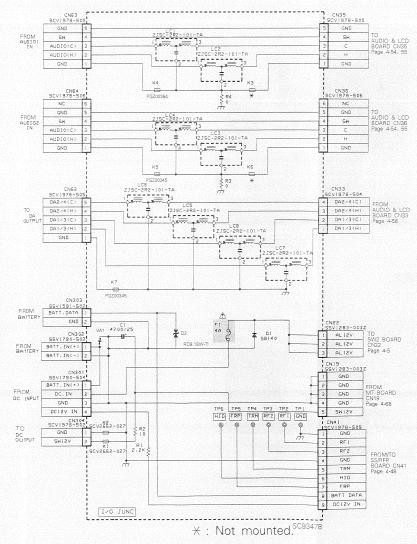
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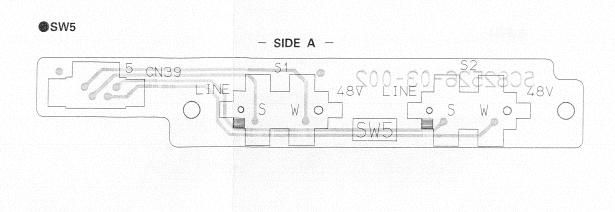


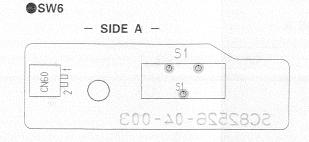
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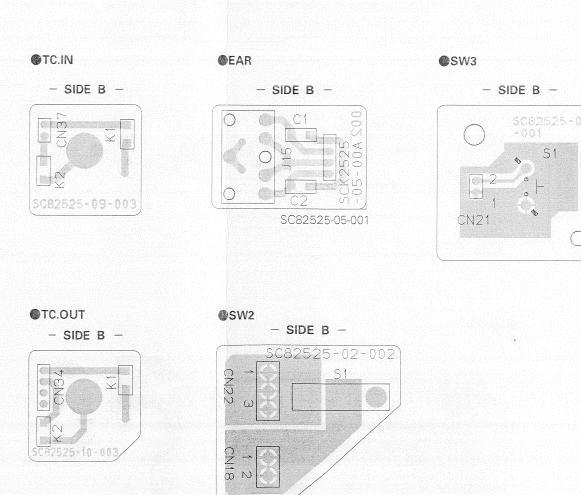


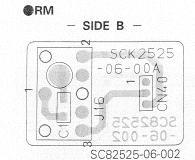
●I/O JUNC BOARD SCHEMATIC DIAGRAM 12









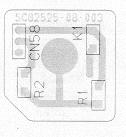


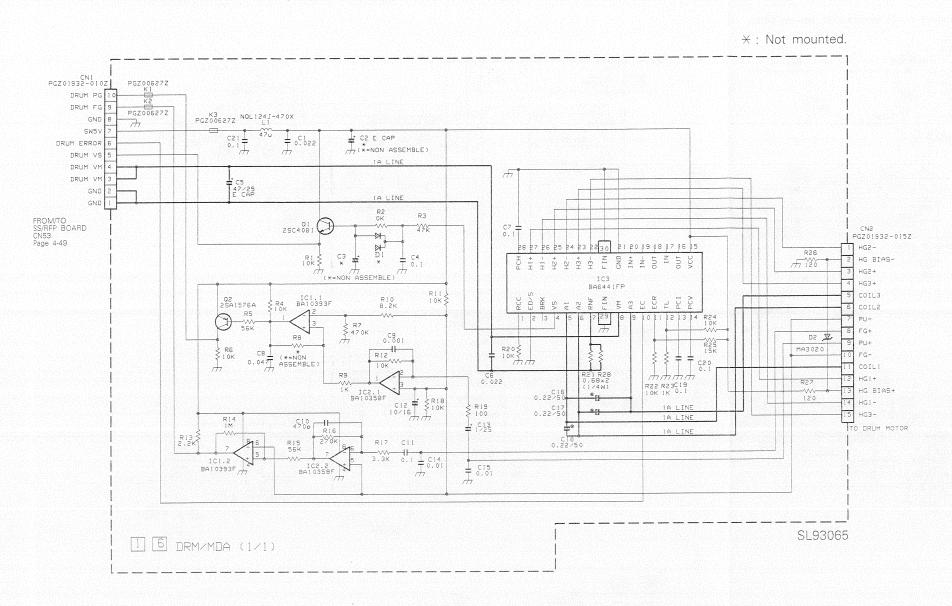


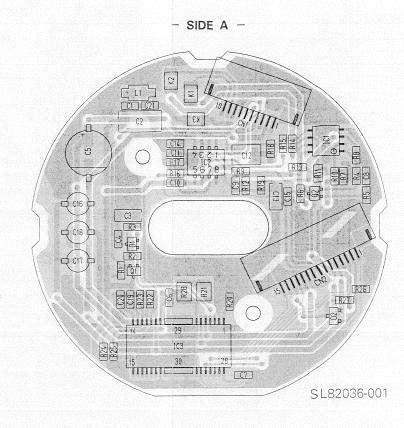
●MON.OUT

●GEN.IN

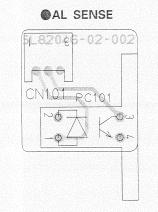
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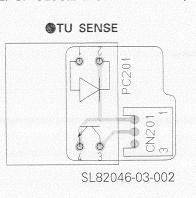


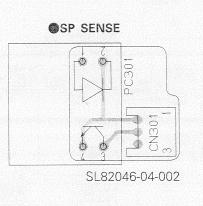


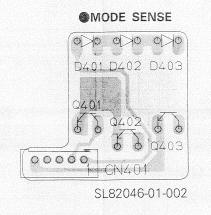


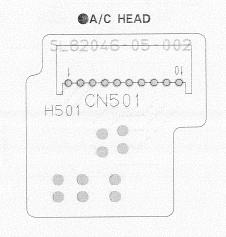
4.33 AL SENSE, TU SENSE, SP SESSE, MODE SENSE, A/C HEAD, BEGIN SENSE, END SENSE CIRCUIT BOARDS

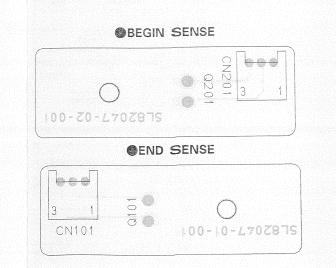






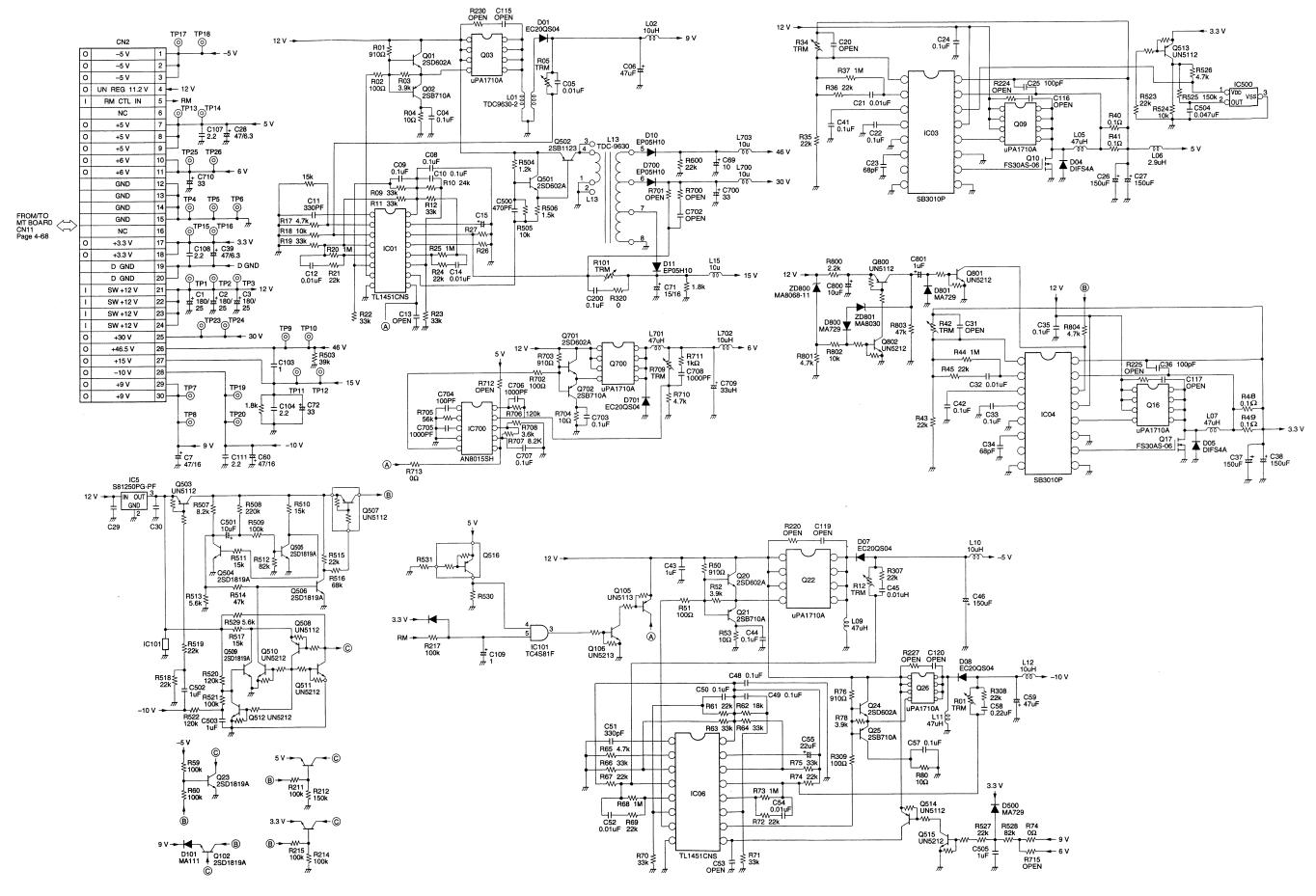






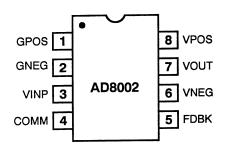
4.34 PS REFERENCE DIAGRAM

Note: When something is wrong with this circuit, replace it with a new assembly. Each component is not available as service parts.



4.35 IC BLOCK DIAGRAMS

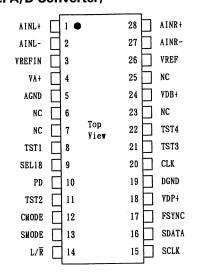
■ AD603AR-X [ANALOG DEVICES] (Variable Gain CTL Amplifier)

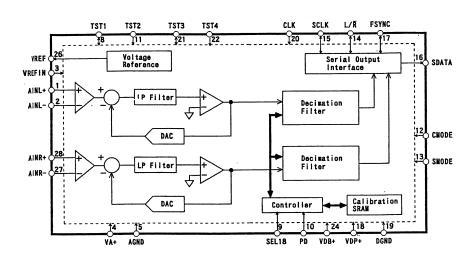


Pin funoction

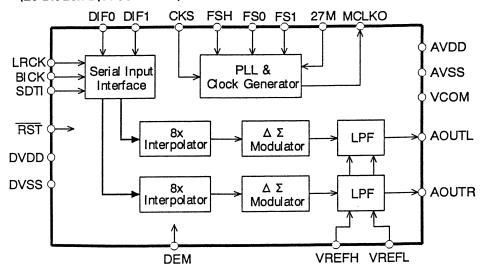
Pin No.		Pin Name
1	GPOS	Gain CTL Input "HI"
2	GNEG	Gain CTL Input "LOW"
3	VINP	Amp. Input
4	COMM	GND
5	FDBK	Feedback
6	VNEG	Vss
7	VOUT	Output
8	VPOS	V _{DD}

■ AK5340-VS [ASAHIKASEI] (18 bit 2Channel A/D Converter)

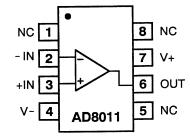




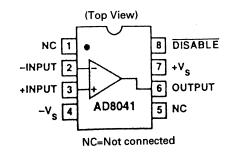
AK4323VF-X [ASAHIKASEI] (20 Bit 2ch D/A Converter)



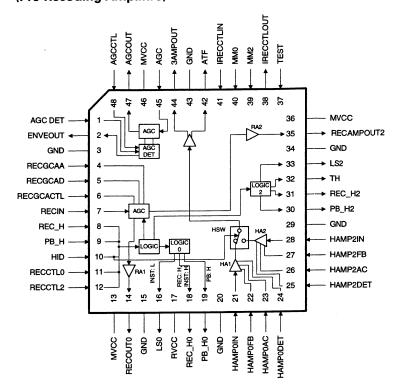
■ AD8011AR-X [ANALOG DEVICES] (Current Feedback Amplifier)



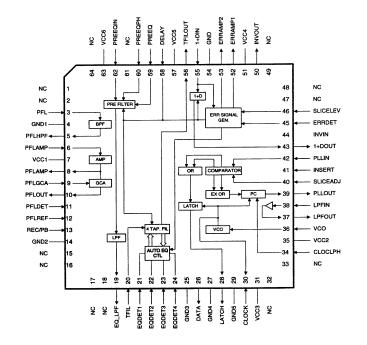
AD8041AR-XE [ANALOG DEVICES] (Op.Amplifier)



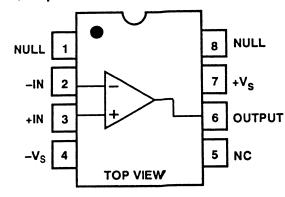
AN3730FA [MATSUSHITA] (Pre-Recoding Amplifire)



■ AN3740FAP [MATSUSHITA] (Playback Amplifire)

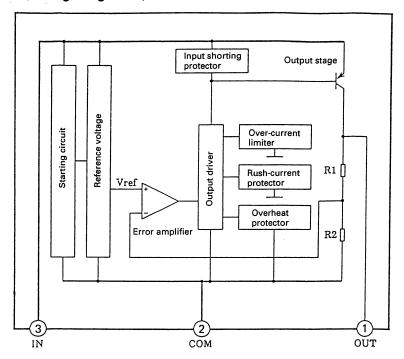


AD817AR-X [ANALOG DEVICES] (Hi-Speed Low Power Op.Amp.)

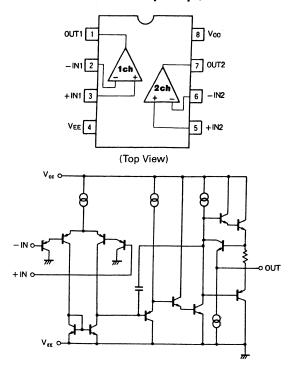


NC = NOT CONNECTED

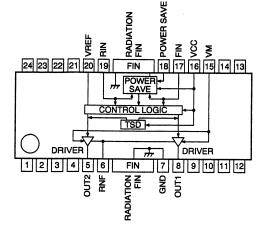
■ AN77L03M-X [MATSUSHITA] (Voltage Regulator)



■ BA10358F-X [ROHM] (Dual Ground Sense Op.Amp.)



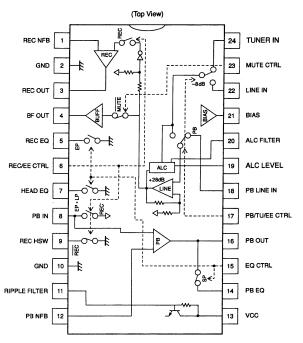
■ BA6285FP-X [ROHM] (Reversible Motor Driver)



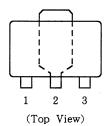
(Top View)

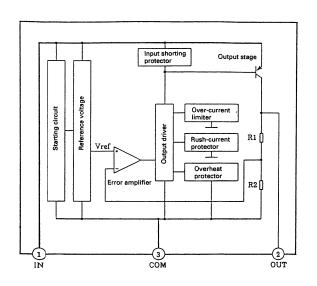
Pin No.	Symbol	Function
1	NC	
2	NC	
3	NC	
4	NC	
5	OUT 2	Motor drive output
6	RNF	GND for motor drive output
7	GND	GND
8	OUT 1	Motor drive output
9	NC	
10	NC	
11	NC	
12	NC	
13	NC	
14	NC	
15	VM	Power source for motor drive
16	Vcc	
17	FIN	Logic input
18	POWER SAVE	Less than 0.8 V : Movement
		More than 2 V : Stand-by
19	RIN	Logic input
20	VREF	Motor drive output voltage (high level) setting
21	NC -	
22	NC	
23	NC	
24	NC	
FIN	FIN ·	Connect the GND

■ BA7795FS-X [ROHM] (Audio Signal Processor)

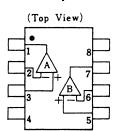


■ AN77L05M-X [MATSUSHITA] (Voltage Regulator)





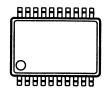
■ BA10393F-XE [ROHM] (Dual Comparator)



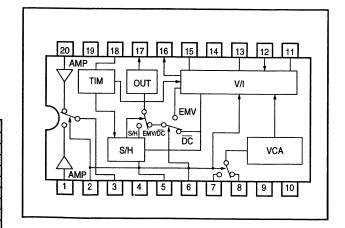
- 1. A OUTPUT
 2. A-INPUT
 3. A+INPUT

- 4. V-5. B+INPUT 6. B-INPUT 7. B OUTPUT

■ BA7043FS-X [ROHM] (VTR Auto Tracking Interface)



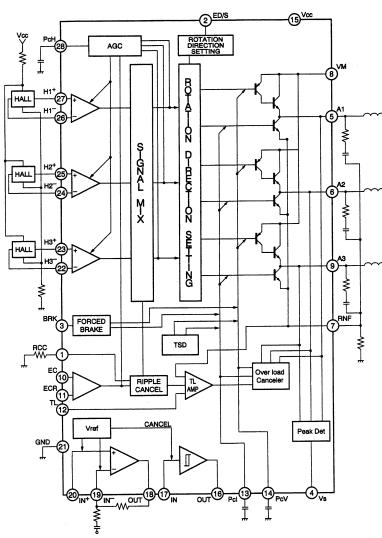
Pin No.	Function	Pin No.	Function
1	AUDIO FM IN	11	V/I RESISTOR
2	VFM/AFM CTL	12	SP/EP GAIN CTL
3	AMP OUT	13	CHARGED CAPACITOR
4	Not Connected	14	GND
5	HOLD CAPACITOR	15	EMV LEVEL ADJ.
6	DC/EMV CTL	16	EMV LEVEL DOWN
7	AUDIO FILTER IN	17	DC/EMV OUT
8	VIDEO FILTER IN	18	D F.F IN
9	VIDEO GAIN ADJ.	19	VCC
10	AUDIO GAIN ADJ.	20	VIDEO FM IN



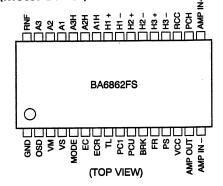
4-76

■ BA6441FP-X [ROHM] (Motor Driver)

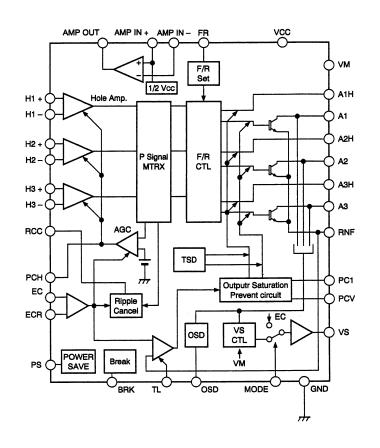




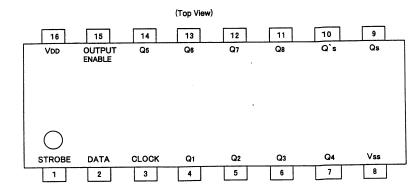
■ BA6862FS-X [ROHM] (Motor Driver)

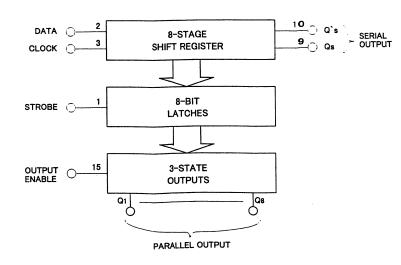


Pin No.	Symbol	Function
1	GND	GND
2	OSD	Output detect for short circuit
3	VM	Power source for motor drive
4	VS	Control for motor drive
5	MODE	Current/Voltage switching
6	EC	Torque control
7	ECR	Torque reference
8	TL	Torque limited
9	PCI	Output saturation prevent level (low level)
10	PCV	Output saturation prevent level (high level)
11	BRK	Break input H: Break L: Movement
12	FR	Foward/Reverse CTL input
13	PS	Power save H: Stand-by L: Movement
14	VCC	
15	AMP OUT	Amplifire output
16	AMP IN -	Amplifire input (–)
17	AMP IN +	Amplifire input (+)
18	PCH	Hole amp, AGC phase compareter
19	RCC	Ripple cancel
20	H3 -	Hole signal input
21	H3 +	Hole signal input
22	H2 -	Hole signal input
23	H2 +	Hole signal input
24	H1 -	Hole signal input
25	H1 +	Hole signal input
26	A1H	Pre motor drive output
27	A2H	Pre motor drive output
28	A3H	Pre motor drive output
29	A1	Motor drive output
30	A2	Motor drive output
31	A3	Motor drive output
32	RNF	GND for motor drive

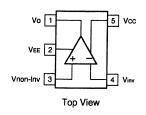


■ BU4094BCFV-X [ROHM] (8-Stage Shift/Store Register)

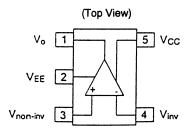




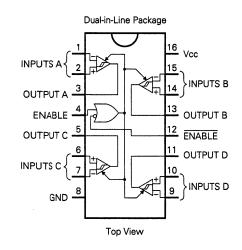
■ CLC450AJM5-X [NATIONAL SEMICON-DUCTOR] (Current Feedback Amplifier)



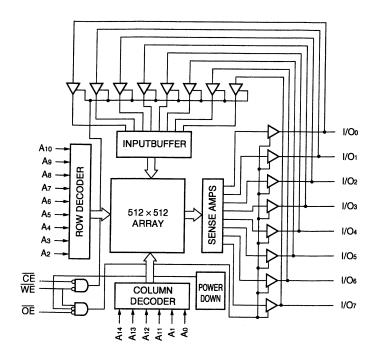
■ CLC452AJM5-X [NATIONAL SEMICON-DUCTOR1 (Single Supply, Low-Power, High Output, Current Feedback Amplifier)



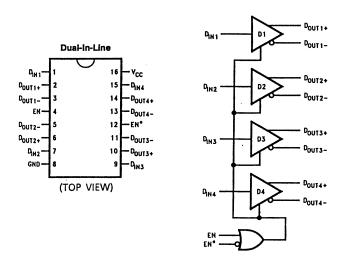
■ DS26C32ATM-X [National Semi Conductor] (Quad Differential Line Receiver)



■ CY62256LL70SN-X [CYPRESS] (32k x 8 Static RAM)

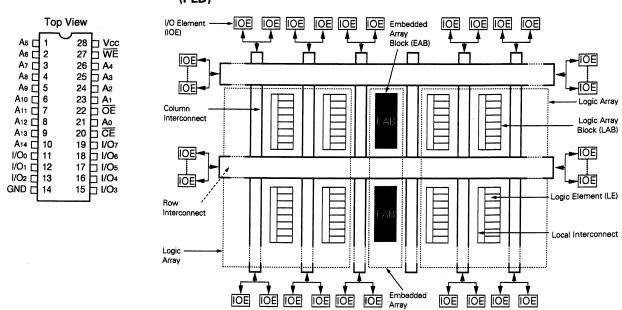


■ DS90LV031TM-X [NATIONAL SEMICONDUCTOR] (3V LVDS Quad CMOS Differential Line Driver)

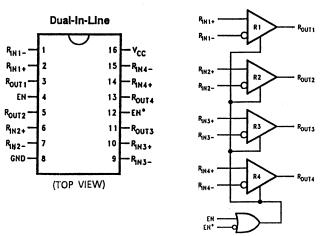


DRIVER							
En	ables	Input	Out	puts			
EN	EN*	D _{IN}	D _{OUT+}	D _{OUT} -			
L	н	X	Z	Z			
	All other combinations of ENABLE inputs		L	Н			
of ENABLE in			н	L			

■ EPF10K10TC144-4 [ALTERA] (PLD)



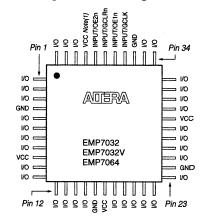
■ DS90LV032TM-X [NATIONAL SEMICONDUCTOR] (3V LVDS Quad CMOS Differential Line Receiver)

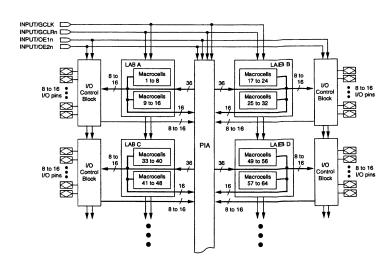


RECEIVER

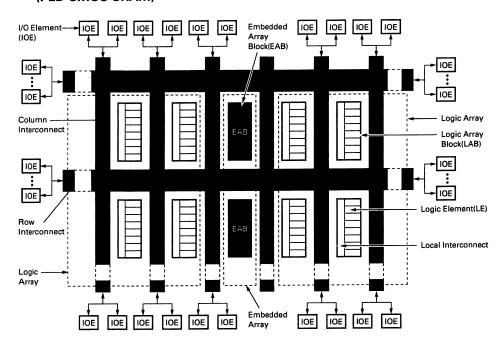
EN	ABLES	INPUTS	OUTPUT
EN EN*		R _{IN+} R _{IN-}	R _{OUT}
L	н	X	Z
All other comb		V _{ID} ≥ 0.1V	Н
of ENABLE inp	outs	$V_{ID} \leq -0.1V$	L
		Full Failsafe OPEN/SHORT or Terminated	н

■ EPM032VT-15-001 [ALTERA] (Erasable Programmable Logic Devices)



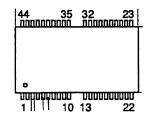


■ EPF10K20TC144-3 [ALTERA] (PLD CMOS SRAM)



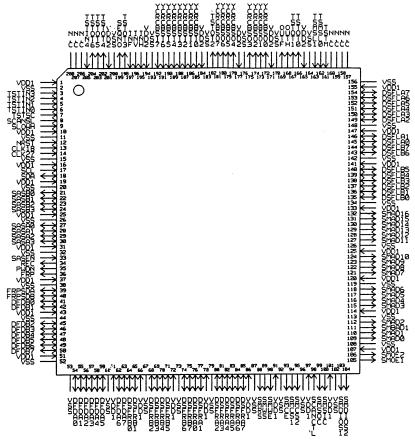
■ HM538254BTT-7 [HITACHI] (256k Word x 8 Bit CMOS Multiport RAM)

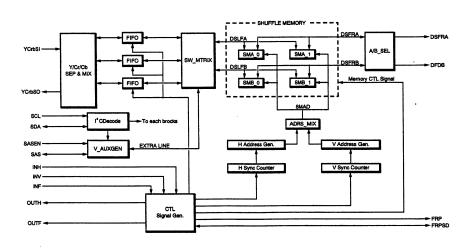
(Top View)



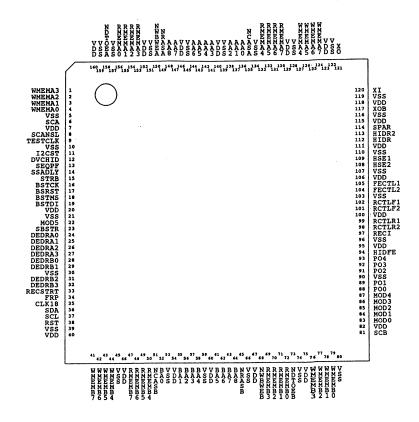
Pin	Pin	name		Pin	Pin	name	
Arrange- ment	Supply voltage/ Clock	Input	Output	Arrange- ment	Supply voltage/ Clock	Input	Output
1	VCC			23	VSS		
2	SC			24		A3	
3		SI/	0.0	25		A2	
4		SI/	01	26		A1	
5		SI/	02	27		A0	
6		SI/	O 3	28			QSF
7	DT/OE			29	CAS		
8		1/0	0 0	30	NC		
9		1/0	1	31	DSF1		
10		I/C) 2	32	VSS		
11	NL			33	NL		
12	NL			34	NL		
13		1/0	3	35) 4
14	VSS			36		1/0	7 5
15	WE			37			26
16	RAS			38		1/0	7
17		A8		39	SE		
18		A7		40			04
19		A6		41		SI	O 5
20		A5		42		SI	O 6
21	i	A4		43		SI	07
22	VCC			44	VSS		

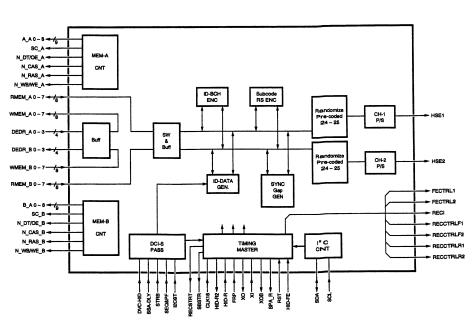
■ JCL0028 [JVC] (Shuffling Memory Control)



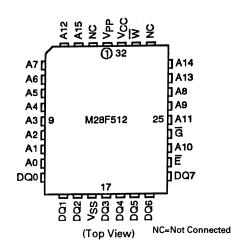


■ JCL0029 [JVC] (Digital Channel Integrated Circuit (DCI) for Recoding)





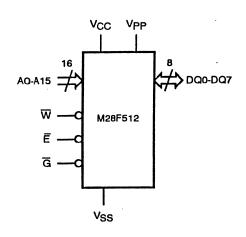
■ PLSC1238 [JVC] PLSC1246 PLSC1256 (512K (64K x 8 Chip Erase) Flash Memory)



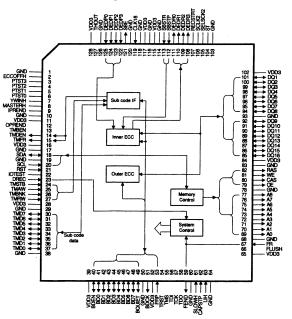
Signal Names

A0 - A15	Address Inputs
DQ0 - DQ7	Data inputs / Outputs
Ē	Chip Enable
G	Output Enable
W	Write Enable
V _{PP}	Program Supply
Vcc	Supply Voltage
Vss	Ground

Logic Diagram



■ L7A1433 [LSI LOGIC] (Error Correcting Codes (ECC))



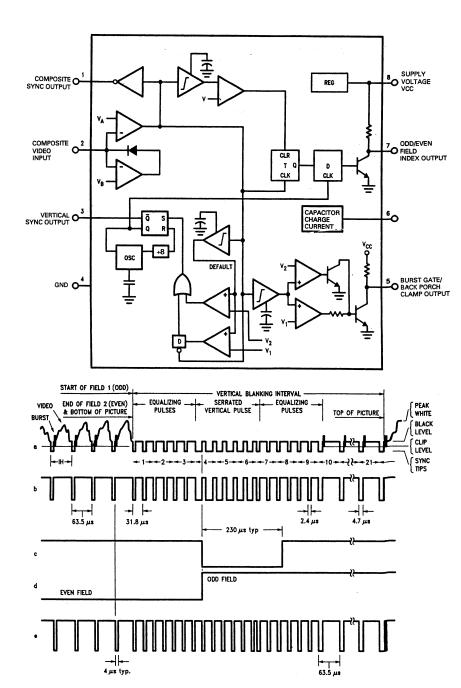
Pin No.	Label	In/Out	Description
1	GND	-	Ground
2	ECCOFFH	-	Not used (Low fixed)
3	PTST3	-	Not used (Low fixed)
4	PTST2	-	Not used (Low fixed)
5	PTST1	-	Not used (Low fixed)
6	PTST0	T -	Not used (Low fixed)
7	TWINH	-	Not used (Low fixed)
8	MASTERH	-	Not used (Low fixed)
9	IPREND	-	Not used (Low fixed)
10	GND	-	Ground
11	VDD3	-	Power supply (+3V)
12	OPREND	-	Not used
13	TMBEN	-	Not used
14	TMDEN	Out	Communication enable of sub code bus
15	TMFR	Out	Frame detect (1st frack: H)
16	VDD3	-	Power supply (+3V)
17	GND	-	Ground
18	SDA	In/Out	Data for IIC
19	GND	-	Ground
20	SCL	In	Clock for IIC
21	RST	ln	System reset
22	IOTEST	-	Not used (High fixed)
23	DREC	In	Signal REC: H
24	TMSTB	in	Data strobe of sub code bus
25	TMAW	In	Address strobe of sub code bus
26	TMBNK	In	Bank select
27	TMRW	In	Read/Write of sub code bus (Write: H)
28	VDD3	-	Power supply (+3V)
29	GND	-	Ground
30	TMDT7	In/Out	
31	TMDT6	in/Out	
32	TMDT5	In/Out	
33	TMDT4	In/Out	Adderss and data of sub code bus
34	TMDT3	In/Out	
35	TMDT2	In/Out	
36	TMDT1	in/Out	
37	TMDTO	In/Out	
38	GND	-	Ground
39	VDD3	-	Power supply (+3V)
40	BDEN	In/Out	DV bus data enable
41	BD0	In/Out	
42	BD1	In/Out	DV bus data (9 MHz/8 bit)
43	BD2	In/Out	
44	BD3	In/Out	

55 56	TRST	-	
56	TMS	-	
	TDI	+	
57	тск	 -	
		+-	-
58	TDO	-	-
59	FEND	Out	Frame end pulse for slow and still
60	GND	T -	Ground
61	SLOWH	In	Slow mode flag (Slow mode: H)
62	CAPSTP	In	
63		In	Capstan stop flag (Capstan stop mode: H)
	LIH	l in	Interval slow or linear slow flag (Linear slow mode: H)
64	GND	<u> </u>	Ground
65	VD03	-	Power supply (+3V)
66	FLUSH	-	Data transition pulse for field advance (Not used)
67	FR	In	Capstan toward/reverse (REV: H)
68	GND	 	Ground
		Out	
69	A0		(A0: LSB)
70	A1	Out	
71	A2	Out	
72	A3	Out	
73	A4	Out	Memory address (9 MHz)
74	A5	Out	1 ' ' '
75	A6	Out	1
76			<u> </u>
	A7	Out	l
	A8	Out	(A8: MSB)
78	GND		Ground
79	OE	Out	Memory output enable (active: L)
80	CAS	Out	Memory column address strobe
81	WE	Out	Memory write enable (arthre: 1)
82			Memory write enable (active: L)
	RAS	Out	Memory row address strobe
83	GND	-	Ground
84	VDD3	-	Power supply (+3V)
85	DQ16	In/Out	(DQ16: MSB)
86	DQ15	In/Out	Memory data (16 bit)
87	DQ14	In/Out	1
88	DQ13		·
89	DQ13	In/Out	
90	DQ11	In/Out	Memory data (16 bit)
91	DQ10	In/Out	
92	DQ9	In/Out	
93	GND	-	Ground
94	DQ8	In/Out	
95	DQ7	In/Out	
96	DQ6		
		In/Out	Memory data (16 bit)
97	DQ5	In/Out	
98	DQ4	In/Out	
99-	DQ3	In/Out	
	DQ2		
100		In/Out	
100			(DO1: LSB)
101	DQ1		(DO1: LSB)
101 102	DQ1 VDD3		Power supply (+3V)
101 102 103	DQ1 VDD3 GND		Power supply (+3V) Ground
101 102 103 104	DQ1 VDD3 GND ST		Power supply (+3V) Ground Not used (Low fixed)
101 102 103 104 105	DQ1 VDD3 GND ST SELSCK2		Power supply (+3V) Ground
101 102 103 104	DQ1 VDD3 GND ST		Power supply (+3V) Ground Not used (Low fixed)
101 102 103 104 105	DQ1 VDD3 GND ST SELSCK2		Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed)
101 102 103 104 105 106 107	DQ1 VDD3 GND ST SELSCK2 SCLK2 RECSTRT	in/Out In	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse
101 102 103 104 105 106 107 108	DQ1 VDD3 GND ST SELSCK2 SCLK2 RECSTRT DEDR3	in/Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) Rec track start pulse (DEDRS: MSB)
101 102 103 104 105 106 107 108	DQ1 VDD3 GND ST SELSCK2 SCLK2 RECSTRT DEDR3 DEDR2	in/Out in Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse
101 102 103 104 105 106 107 108 109	DQ1 VD03 GND ST SELSCK2 SCLK2 RECSTRT DEDR3 DEDR2 DEDR1	in/Out in Out Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDR3: MSB) REC data to DCI (9 MHz/4 bit)
101 102 103 104 105 106 107 108 109 118	DOI VDD3 GND ST SELSCK2 SCLK2 FRECSTRT DEDR3 DEDR2 DEDR1 DEDR0	in/Out in Out Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDR3: MSB) REC data to DCI (9 MHz/4 bit) (DEDR0: LSB)
101 102 103 104 105 106 107 108 109 110 111 111	DOI VD03 GND ST SELSCK2 SCLK2 RECSTRT DEDR3 DEDR2 DEDR1 DEDR0 SBSTP	in/Out In Out Out Out Out	Power supply (-3V) Ground Strough (Low fixed) Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDRS: MSB) REC data to DCI (9 MHz/4 bit) (DEDRO: LSB) Sync. block start pulse (PB)
101 102 103 104 105 106 107 108 109 118	DOI VDD3 GND ST SELSCK2 SCLK2 FRECSTRT DEDR3 DEDR2 DEDR1 DEDR0	in/Out in Out Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDR3: MSB) REC data to DCI (9 MHz/4 bit) (DEDR0: LSB)
101 102 103 104 105 106 107 108 109 110 111 111	DOI VD03 GND ST SELSCK2 SCLK2 RECSTRT DEDR3 DEDR2 DEDR1 DEDR0 SBSTP	in/Out In Out Out Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDRS: MSB) REC data to DCI (9 MHz/4 bit) (DEDRO: LSB) Sync. block start pulse (PB)
101 102 103 104 105 106 107 108 109 110 111 111 112	DOI VD03 GND ST SELSCK2 SCLK2 RECSTRT DEDR3 DEDR3 DEDR1 DEDR0 SBSTP SBSTR	in/Out In Out Out Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDR3: MSB) REC data to DCI (9 MH:z/4 bit) (DEDR0: LSB) Sync. block start pulse (PB) Sync. block start pulse (REC) Ground
101 102 103 104 105 106 107 108 109 110 111 112 113	DOI VD03 GND ST SELSCK2 SCLK2 RECSTRT DEDR3 DEDR3 DEDR1 DEDR0 SBSTP SBSTR GND	in/Out In Out Out Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDRS: MSB) REC data to DCI (9 MHz/4 bit) (DEDRG: LSB) Sync. block start pulse (PB) Sync. block start pulse (REC) Ground Power supply (-3V)
101 102 103 104 106 106 107 108 109 110 111 112 113 114 115	DOI VD03 GND ST SELSCK2 SCLK2 SCLK2 SCLK2 DEDR3 DEDR1 DEDR0 SBSTP SBSTR GND GND	in/Out In Out Out Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) RO tased (Low fixed) REC track start pulse (DEDRs: MSB) REC data to DCI (9 MHz/4 bit) (DEDR0: LSB) Sync. block start pulse (PB) Sync. block start pulse (REC) Ground Power supply (-3V) Ground
101 102 103 104 105 106 107 108 109 119 111 112 113 114 115 116	DOI VD03 GMD ST SELSCK2 SCLK2 RECSTRT DEDR3 DEDR1 DEDR0 SBSTP SBSTR GND VD03 GMD VD03	in/Out In Out Out Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track star pulse (DEDR3: MSB) REC data to DCI (9 MHz/4 bft) (DEDR0: LSB) Sync. block start pulse (PB) Sync. block start pulse (REC) Ground Power supply (-3V) Ground Power supply (-3V)
101 102 103 104 105 106 107 108 109 111 112 113 114 115 116 117 118	DOI VPDOS GNID ST SELSCK2 SCLV2 RECSTRT DEDRS DEDRS DEDRI DEDRO DEDRO GNID GNID GNID GNID GNID GNID GNID GNID	In/Out In Out Out Out In In	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDRS: MSB) REC data to DCI (9 MHz/4 bit) (DEDR0: LSB) Sync. block start pulse (REC) Ground Power supply (-3V) Ground Power supply (-3V) Ground
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118	DOI VDDS GND ST SELSCK2 SCLK2 RECSTRT DEDRS DEDRS DEDRA DEDRA DEDRA GND VDDS GND VDDS GND CLK16	in/Out In Out Out Out Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start putse (IDEDRS: MSB) REC data to DCI (9 MHz/4 bit) (IDEDRO: LSB) Sync. block start putse (PBC) Ground Power supply (-3V) Ground Power supply (-5V) Ground System clock input (18 MHz) from CLK OSC IC (IC401)
101 102 103 104 105 106 107 108 108 110 111 112 113 114 115 116 117 118	DOI VPDOS GNID ST SELSCK2 SCLV2 RECSTRT DEDRS DEDRS DEDRI DEDRO DEDRO GNID GNID GNID GNID GNID GNID GNID GNID	In/Out In Out Out Out In In	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDRS: MSB) REC data to DCI (9 MHz/4 bit) (DEDR0: LSB) Sync. block start pulse (REC) Ground Power supply (-3V) Ground Power supply (-3V) Ground
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118	DOI VDDS GND ST SELSCK2 SCLK2 RECSTRT DEDRS DEDRS DEDRA DEDRA DEDRA GND VDDS GND VDDS GND CLK16	In/Out In Out Out Out In In	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track star pulse (DEDR3: MSB) REC data to DCI (9 MHz/4 bH) (DEDR0: LSB) Sync. block start pulse (PB) Sync. block start pulse (REC) Ground Power supply (-3V) Ground Power supply (-3V) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground
101 102 103 104 105 106 107 108 108 110 111 112 113 114 115 116 117 118	DOI VDDS GND ST SELSCK2 SCLV2 RECSTRT DEDRS DEDR1 DEDR0 DEDR	In/Out In Out Out Out	Power supply (+3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDR3: MSB) REC data to DCI (9 MHz/4 bit) (DEDR0: LSB) Sync. block start pulse (PB) Sync. block start pulse (REC) Ground Power supply (+3V) Ground System tock input (18 MHz) from CLK OSC IC (IC401) Ground System tock input (18 MHz) from CLK OSC IC (IC401) Sync block error
101 102 103 104 105 106 107 108 108 110 111 111 113 114 115 116 117 118 119 120	DOI VDDS GND ST SELSCK2 SCLK2 RECSTRT DEDRS DEDRS DEDRS DEDRS SBSTP GND VDDS GND CLK18 GND CLK18 GND CLK18 GND SSE	in/Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start putse (DEDRS: MSB) REC data to DCI (9 MHz/4 bit) (DEDRO: LSB) Sync. block start putse (PB) Sync. block start putse (REC) Ground Power supply (-3V) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground Sync block error (ICEDRS: MSB)
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 129 120 121 121 122 123	DOI VDD3 GND ST SELSCK2 SCLX2 SCLX2 RECSTRT DEDR3 DEDR1 DEDR0 DEDR1 DEDR0 GND VDD3 GND VDD3 GND CLX18 GND DEDR2 GND DEDR2 GND DEDR2 DEDR2 DEDR3	In/Out	Power supply (+3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start pulse (DEDR3: MSB) REC data to DCI (9 MHz/4 bit) (DEDR0: LSB) Sync. block start pulse (PB) Sync. block start pulse (REC) Ground Power supply (+3V) Ground System tock input (18 MHz) from CLK OSC IC (IC401) Ground System tock input (18 MHz) from CLK OSC IC (IC401) Sync block error
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 122	DOI VODS GND ST SELSCK2 SCLK2 SCLK2 RECSTRT DEDRS DEDR1 DEDR0 DEDR0 SBSTTP GND VDD3 GND CLK16 GND CLK16 GND SBE DEDP2 DEDP2 DEDP2 DEDP2 DEDP2 DEDP2	In/Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC tinck start pulse (DEDR3: MSB) REC data to DCI (9 MHz/4 bit) (DEDR0: LSB) Sync. block start pulse (PB) Sync. block start pulse (REC) Ground Power supply (-3V) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) By the block error (DEDR3: MSB) PB data from DCI (9MHz/4 bit)
101 102 103 104 105 106 106 109 110 111 112 113 114 115 118 119 129 121 122 123 124 125	DOI VODS GND ST SELSCK2 SCLK2 RECSTRT DEDRS DEDRS DEDRS DEDRS GND VODS GND CLK18 GND CLK18 GND CLK18 GND DEDRS DEDPS DEDPS DEDPS DEDPS DEDPS DEDPS DEDPS DEDPS	In/Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start putse (IDEDRS: MSB) REC data to DCI (9 MHz/4 bit) (IDEDRO: LSB) Sync. block start putse (PB) Sync. block start putse (REC) Ground Power supply (-3V) Ground System clock input (18 MHz) from CLK OSC IC (IC401)
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 117 118 119 120 121 122 123 124 125	DOI VDD3 GND ST SELSCK2 SCLX2 RECSTRT DEDR3 DEDR3 DEDR3 DEDR4 SBSTP SBSTP SBSTP GND VDD3 GND CLK16 GND DEDR2 DEDR1 DEDR2 DEDR2 DEDR2 DEDR3 DEDR3 DEDR3 DEDR3 DEDR3 DEDR3 DEDR3 DEDR3 DEDR3 DEDR4 DEDR5 GND	In/Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC tinck start pulse (DEDR3: MSB) REC data to DCI (9 MHz/4 bit) (DEDR0: LSB) Sync. block start pulse (PB) Sync. block start pulse (REC) Ground Power supply (-3V) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) Ground System clock input (18 MHz) from CLK OSC IC (IC401) By the block error (DEDR3: MSB) PB data from DCI (9MHz/4 bit)
101 102 103 104 105 106 106 109 110 111 112 113 114 115 118 119 129 121 122 123 124 125	DOI VODS GND ST SELSCK2 SCLK2 RECSTRT DEDRS DEDRS DEDRS DEDRS GND VODS GND CLK18 GND CLK18 GND CLK18 GND DEDRS DEDPS DEDPS DEDPS DEDPS DEDPS DEDPS DEDPS DEDPS	In/Out	Power supply (-3V) Ground Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) Not used (Low fixed) REC track start putse (IDEDRS: MSB) REC data to DCI (9 MHz/4 bit) (IDEDRO: LSB) Sync. block start putse (PB) Sync. block start putse (REC) Ground Power supply (-3V) Ground System clock input (18 MHz) from CLK OSC IC (IC401)

In/Out DV bus data (9 MHz/8 bit)

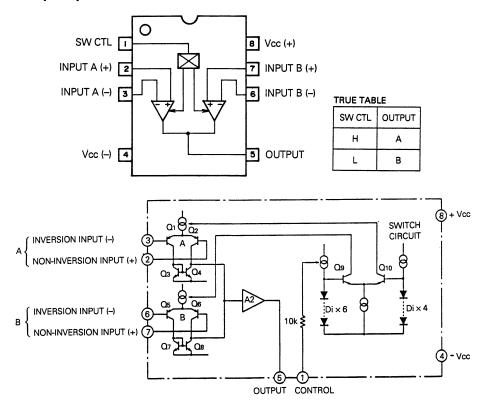
in/Out DV bus busy

■ LM1881M-X [National Semiconductor] (Video Sync Separator)

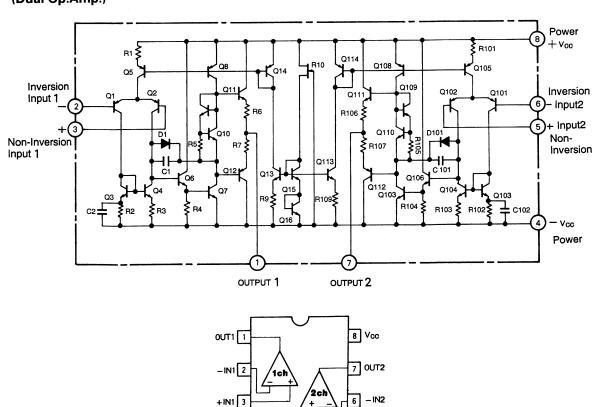


(a) Composite Video; (b) Composite Sync; (c) Vertical Output Pusise; (d) Odd/Even Field Index; (e) Burst Gate/Back Porch Clamp

M5201FP-X [MITSUBISHI] (Switch Op Amp.)



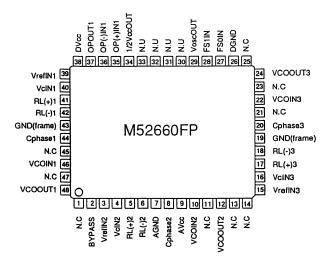
■ M5218AFP-X [MITSUBISHI] (Dual Op.Amp.)

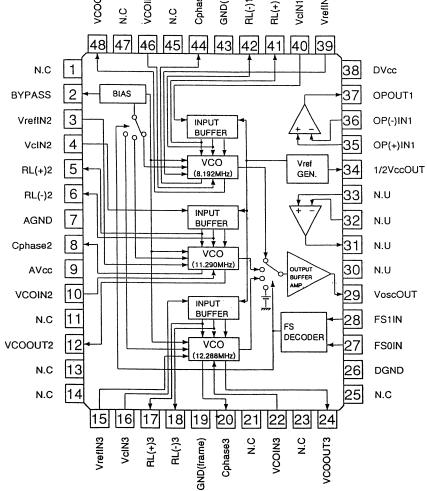


5 + IN2

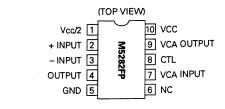
VEE 4

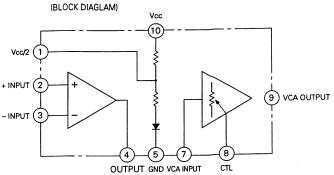
■ M52660FP [MITSUBISHI] (3 Channel VCO)



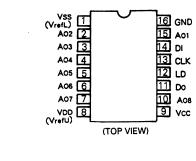


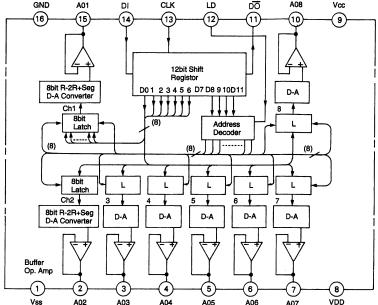
■ M5282FP-X [MITSUBISHI] (VCA and Op Amp.)



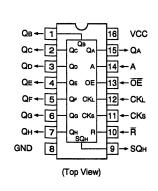


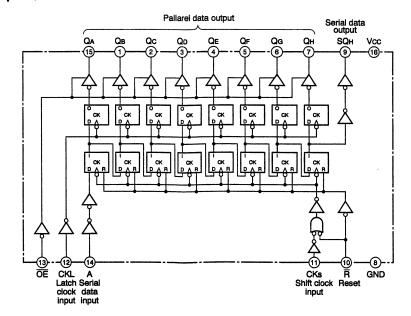
■ M62353GP-X [MITSUBISHI] (8-Bit 8-Channel D/A Converter)



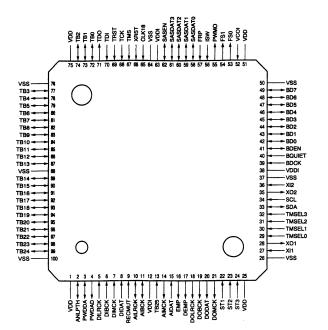


■ M66312FP-W [MITSUBISHI] (8 Bit LED Driver with Shift Register and Latched 3-State Outputs)

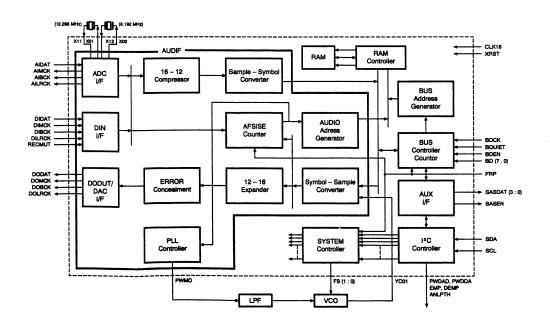




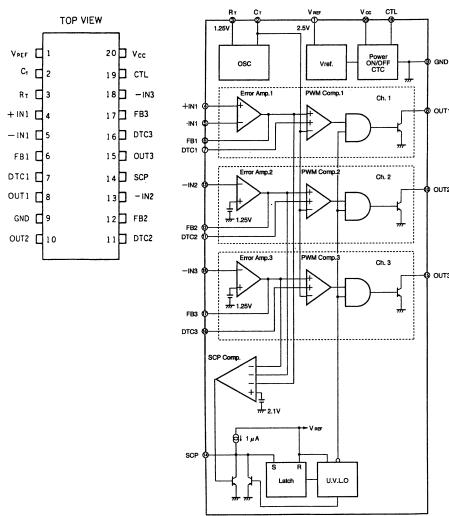
■ M65401FP [MITSUBISHI] (Digital Signal Processor for Audio Signal)



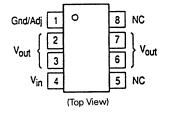
in Number	Pin Name	Function	1/0	Pin Number	Pin Name	Function	1
1	VDD	Outer Power	1-1	51	VDD	Outer Power	Ι
2	ANLPTH	Analog loop through(H:through)	В	52	VCOI	VCO clock input for PLL	Ţ
3	PWDDA	Power down for DAC(L:power down)	В	53	FS[0]	Fs select for VCO	T
4	PWDÁD	Power down for ADC(L:power down)	0	54	FS[1]	Fs select for VCO	T
5	DILRCK	L/R clock from Digital In	17	55	PWMO	Phase comparator output of PLL	T
6	DIBCK	Bit clock from Digital In	+	56	ISW	1mA or 4mA Change Control ("H"4mA,"L"1mA)	1
7	DIMCK	Master clock from Digital in	H	57	FRP	Frame Start from Shuffling	1
8	DIDAT	Serial Data from Digital In	\Box	58	SASDATIO)	Line Data to/from Shuffling	†
9	RECMUT	Rec Data Mute	Ħ	59	SASDAT[1]	Line Data to/from Shuffling	†
10	AILRCK	L/R clock for ADC	В	60	SASDAT[2]	Line Data to/from Shuffling	†
11	AIBCK	Bit clock for ADC	B		SASDAT[3]	Line Data to/from Shuffling	1
12	VDDI	Inner Power	-	62	SASEN	Line Data Enable to Shuffling	1
13	TB[25]	Test Bus	Ħ	63	VDDI	Inner Power	+
14	AIMCK	Master clk for ADC(256 · fs)	1	64	VSS	GND	+
15	AIDAT	Serial Data from ADC	H	65			1
			-		CLK18	Master clock (18MHz)	-
16	EMP	ADC emphasis control	0	66	XRST	Reset (L:reset)	-
17	DEMP	DAC De-emphasis control	의	67	TMS	Boundary Scan Test (Test Mode Select)	-
18	DOLRCK	L/R clock for DAC/D-OUT	의	68	TCK	Boundary Scan Test (Test Clock)	_
19	DOBCK	Bit clock for DAC/D-OUT	0	69	TRST	Boundary Scan Test (Test Reset)	_
20	DODAT	Serial Data for DAC/D-OUT	의	70	TDI	Boundary Scan Test (Test Data Input)	-
21	DOMCK	Master clock for DAC/D-OUT(256 • fs)	0	71	TDO	Boundary Scan Test (Test Data Output)	_
22	ST1	Scan Test Mode Select(Lenable)	1	72	TB(0)	Test Bus	-
23	ST2	Scan Test Clock	Ш	73	TB(1)	Test Bus	-
24	ST3	Scan Test Data Input	1	74	TB[2]	Test Bus	_
25	VDD	Outer Power	-	75	VDD	Outer Power	
26	VSS	GND	L-I	76	VSS	GND	_
27	XI1	12.288MHz X'tai port(48kHz)	Ш	77	TB(3)	Test Bus	_
28	XO1	12.288MHz X'tal port(48kHz)	0	78	TB(4)	Test Bus	_
29	TMSEL[0]	Test Mode Select		79	TB[5]	Test Bus	
30	TMSEL[1]	Test Mode Select	П	80	TB(6)	Test Bus	_
31	TMSEL[2]	Test Mode Select	П	81	TB[7]	Test Bus	
32	TMSEL(3)	Test Mode Select	П	82	TB(8)	Test Bus	
33	SDA	I2C data line	В	83	TB[9]	Test Bus	
34	SCL	I2C clock line		84	TB[10]	Test Bus	
35	XO2	8.192MHz X'tal port(32kHz)	0	85	TB[11]	Test Bus	
36	XI2	8.192MHz X'tal port(32kHz)	П	86	TB[12]	Test Bus	
37	VSS	GND	-	87	TB[13]	Test Bus	•
38	VDDI	Inner Power	-	88	vss	GND	٠
39	BDCK	DVC bus clock	П	89	TB(14)	Test Bus	٠
40	BQUIET	DVC bus control	17	90	TB(15)	Test Bus	
41	BDEN	DVC bus enable	В	91	TB[16]	Test Bus	•
42	BD[0]	DVC bus data	В	92	TB[17]	Test Bus	
43	BD(1)	DVC bus data	В	93	TB[18]	Test Bus	-
44	BD[2]	DVC bus data	В	94	TB[19]	Test Bus	-
45	BD(3)	DVC bus data	В	95	TB[20]	Test Bus	-
46	BD[3] BD[4]	DVC bus data	В		TB[21]	Test Bus	
47		DVC bus data	В	96 97		Test Bus	-
4/	BD(5)	DVC bus data	В	97	TB[22]	Test Bus	-
					TB(23)		
48	BD[6] BD[7]	DVC bus data	B	99	TB[24]	Test Bus	-



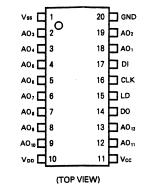
■ MB3782PF-X [FUJITSU] (Switching Regulator Controller)

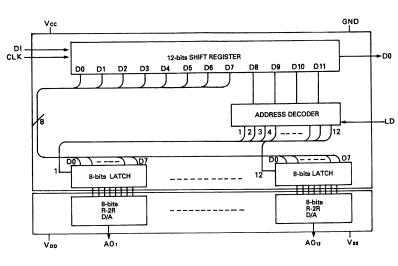


■ MC33269DR2-3.3 [MOTOROLA] (Regulator)



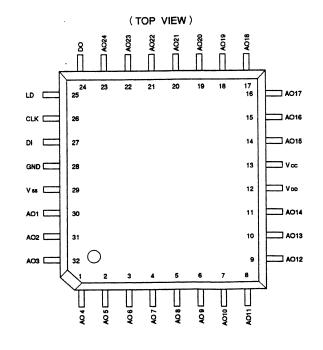
■ MB88341PFV-X [FUJITSU] (D/A Converter)

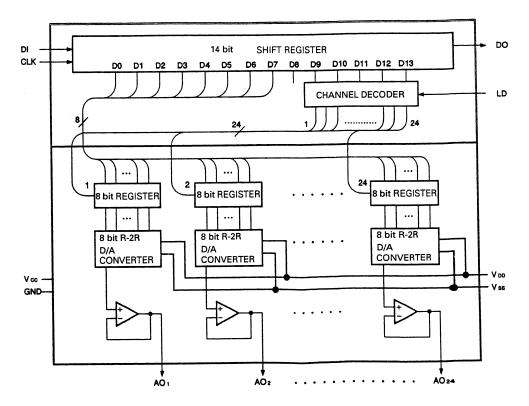




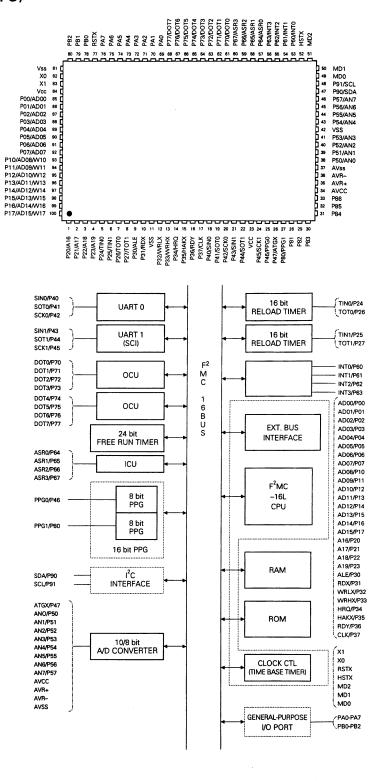
Symbol	Pin No.	1/0	Function				
	MB88341						
DI	17	1	For serial data (12 bits) input.				
DO	14	0	For MSB data output of 12-bit shift register.				
CLK	16	ı	For shift clock input. Signal from DI pin is input to 12-bit shift register.				
LD	15	1	With "H" input to LD pin, data of 12-bit shift register is loaded to decoder and D/A output register.				
AO1 AO2 AO3 AO4 AO5 AO6 AO7 AO8 AO9 AO10 AO11 AO12	18 19 2 3 4 5 6 7 8 9 12	0	For 8-bits D/A output.				
Vcc	11	T —	Power source of MCU interface.				
GND	20	 	GND of MCU interface				
VDD	10	_	Power source of D/A converter.				
Vss	1	_	GND of D/A converter.				

MB88345PF [FUJITSU] (D/A Converter)

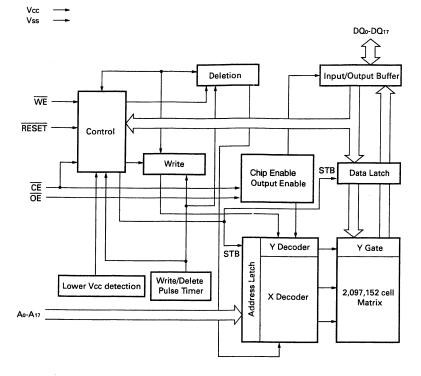




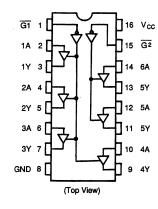
■ MB90T678BPF [MITSUBISHI] (CPU)



■ PLSC1234 [JVC] (2M Bit Flash Memory)



■ MC74HC367F-X [MOTOROLA] (Hex Bus Drivers With 3-State NON-Inverted Output)

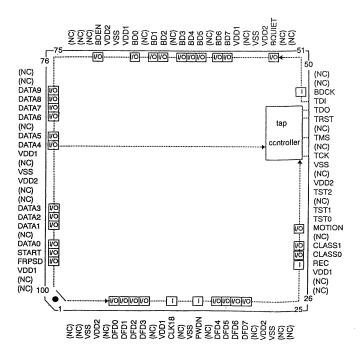


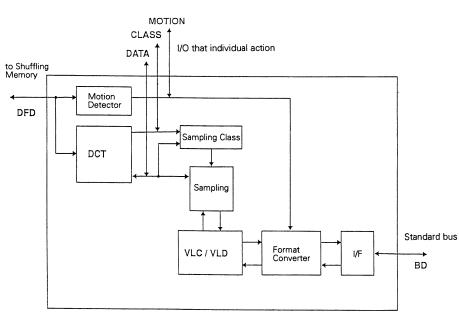
TRUE Table

INF	UTS	OUTPUTS			
G	An	Y(367A)	Y (368A)		
L	L	L	Н		
L	Н	Н	L		
н	х	Z	Z		

X:DON'T CARE Z:HIGH IMPEDANCE

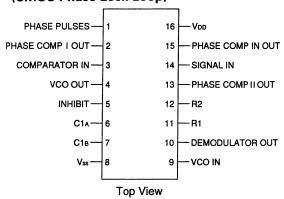
■ MN673711 [MATSUSHITA] (Video Compression/Decompression LSI)

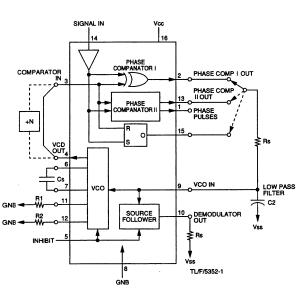




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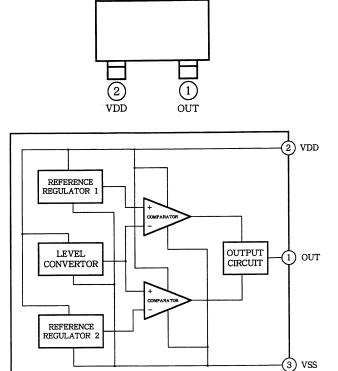
MC74HC4046AF-X [MOTOROLA] (CMOS Phase Lock Loop)



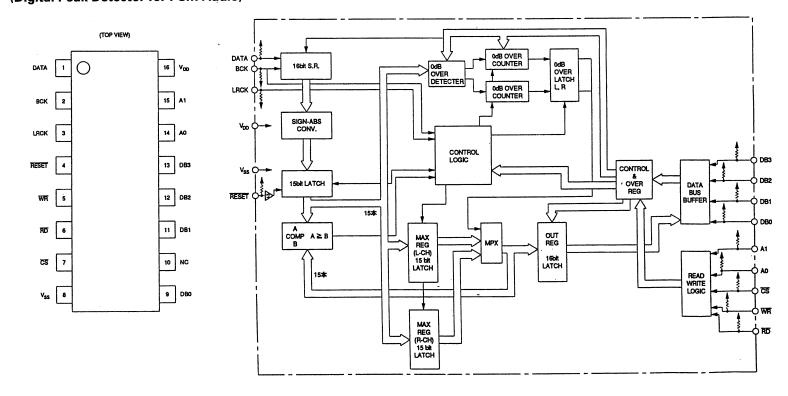


MN12821-QR-X [MATSUSHITA] (Voltage Detecter)

VSS

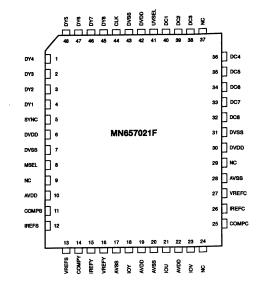


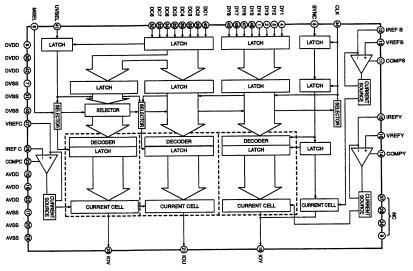
■ MSM6338MS-K-X [OKI] (Digital Peak Detector for PCM Audio)



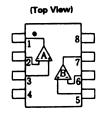
MN657021F [MATSUSHITA] (8 Bit 3ch D/A Converter)

(Top View)

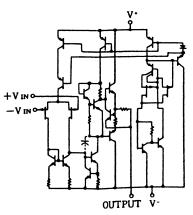




■ NJM062M-X [JRC] (J-FET Input Op.Amp.)

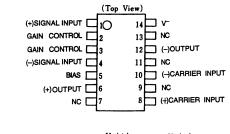


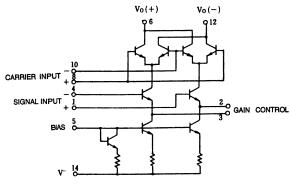
1. A OUTPUT
2. A—INPUT
3. A+INPUT
4. V5. B+INPUT
6. B—INPUT
7. B OUTPUT
8. V



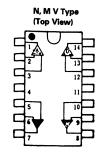
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■ NJM1496V-X [JRC] (Balanced Modulator)





NJM2902M-X [JRC] (Quad Single Supply Op.Amp.)



Pin Assignment	
1 .A OUTPUT 2 .A -INPUT 3 .A +INPUT 4 .V* 5 .B +INPUT 6 .B -INPUT 7 .B OUTPUT	8.C OUTPU 9.C-INPUT 10.C+INPUT 11.GROUND 12.D+INPUT 13.D-INPUT 14.D OUTPU

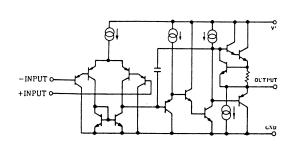
Pin Assignment

1 . A OUTPUT

2. A-INPUT 3. A+INPUT 4. GND

4. GND 5. B+INPUT 6. B-INPUT 7. B OUTPUT 8. V

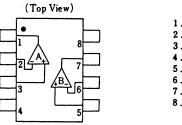
■ Equivalent Circuit (4 circuits in a chip)



■ NJM2903V-X [JRC] (Dual Single Supply Comparator)

D, M Type

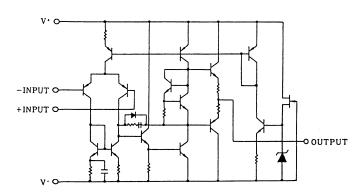
(Top View)

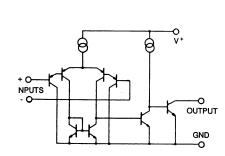


■ NJM2068M-D-X [JRC]

(Dual Low-Noise Op.Amp.)

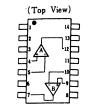


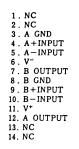


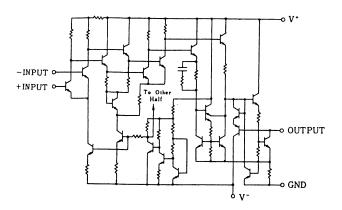


■ NJM2068V-X [JRC] (See NJM2068M-D-X.)

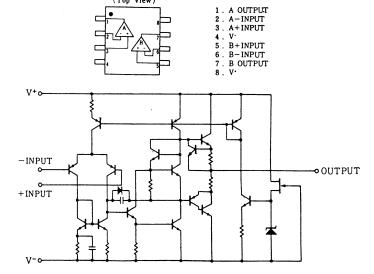
■ NJM319M-X [JRC] (Voltage Comparator)



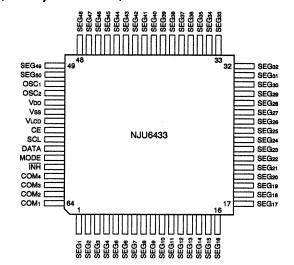




■ NJM4556AM-X [JRC] (Dual High Current Op.Amp.)

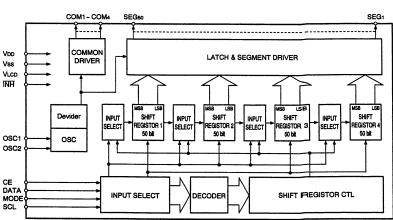


■ NJU6433FB2 [JRC] (1/4 Duty LCD Driver)

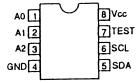


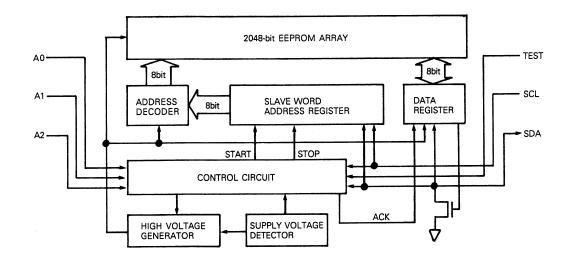
(TOP VIEW)

No.	Symbol	Function
1~50	SEG1~SEG50	Segment output for LCD driver
51	OSC1	000 +
52	OSC2	OSC terminal
53	VDD	
54	VSS	GND
55	VLCD	Power source for LCD drive
56	CE	H level : Data input
		Drop-down edge : Data latch
		L level : Disable
57	SCL	Clock input for serial data trancefar.
58	DATA	Serial data input.
59	MODE	H level : Mode seting
		L level : Data input for LCD display
60	ĪNH	L level : LCD is not display
		H level : LCD is display
61~64	COM4~COM1	Common output for LCD drive.

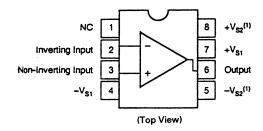


■ NM24C02EM8-X [ROHM] (IIC Bus 2k Serial EEPROM)

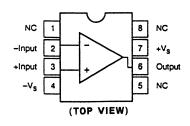




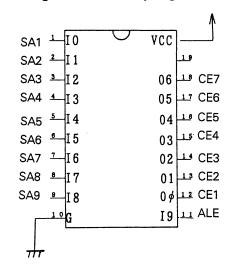
■ OPA655U-XE [BBJ] (Op.Amplifier)



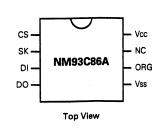
■ OPA658U-XE [BBJ] (Op.Amplifier)



■ P16V8Z-25-01 [ADVANCED MICRO DE-VICES] (Programmable Array Logic)

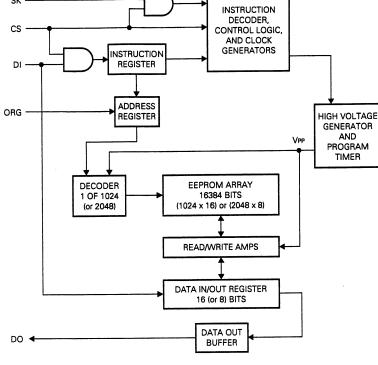


■ NM93C86AEM8-X [NATIONAL SEMICONDUCTOR] (16,384-Bit Serial Interface, Standard Voltage CMOS EEPROM)

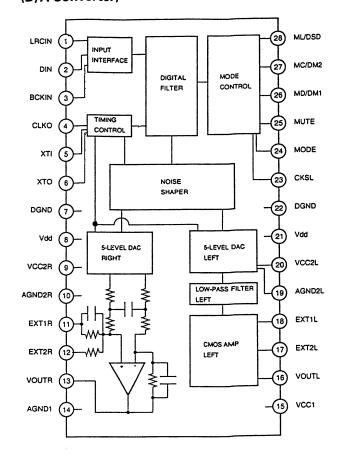


Pin	Description
CS	Chip Select
SK	Serial Data Clock
DI	Serial Data Input
DO	Serial Data Output
VSS	Ground
ORG	Memory Organization Select (On the NM93C86A)
NC	No Connect
VCC	Positive Power Supply

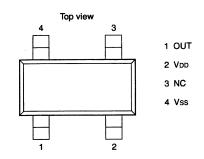
Block Diagram

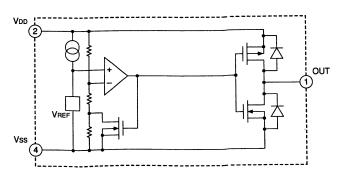


■ PCM1710U/G/-XE [BAR BRAWN] (D/A Converter)

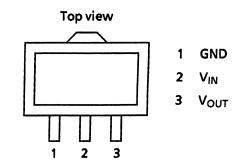


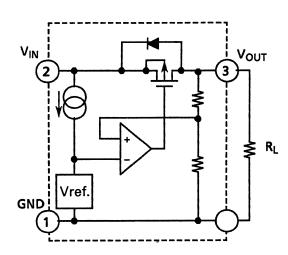
■ S-80840ANNP-W [SEIKO] (Precision Voltage Detector)





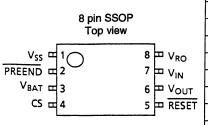
S-81224SGUP-X [SEIKO] (Voltage Regulator(2.4V))



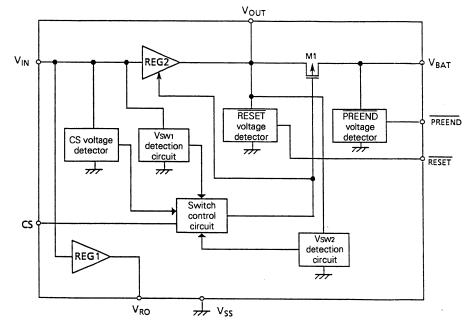


- S-81233SGUP-X [SEIKO] (See S-81224SGUP-X.)
- S-81240SGUP-X [SEIKO] (See S-81224SGUP-X.)
- S-81250SGUP-X [SEIKO] (See S-81224SGUP-X.)

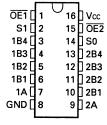
■ S-8423LFS-X [SEIKO] (Battery Back-up Selector)



	Pin name	Description			
	cs	Output terminal for CS voltage detector			
	RESET Output terminal for RESET voltage de				
	PREEND	Output terminal for PREEND voltage detector			
	Vin*	Input terminal for main power supply			
	VBAT*	Power input terminal for backup			
_	Vou _T *	Output terminal for voltage regulator 2			
ī	Vro*	Output terminal for voltage regulator 1			
	Vss	GND			



■ SN74CBT3253PW-X [TEXAS] (2 Circuit 4 Bit-1 Bit FET Multiplexer/Demultiplexer)

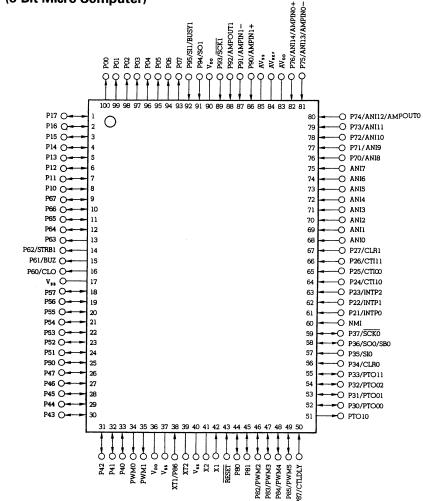


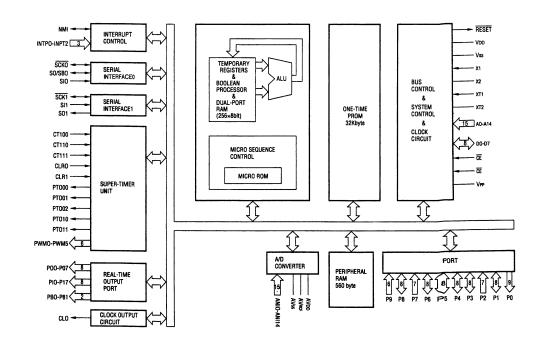
Top View

S1	S0	OE1	OE2	FUNCTION
Х	Х	Х	Н	Disconnect 1A
Х	×	н	×	Disconnect 2A
L	L	L	L	1A to 1B1 and 2A to 2B1
L	н	L	L	1A to 1B2 and 2A to 2B2
Н	L	L	L	1A to 1B3 and 2A to 2B3
Н	Н	L	L	1A to 1B4 and 2A to 2B4

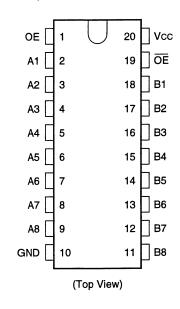
H:High Level L:Low Level X:Dont Care

SC78148GF-XXX [JVC] (8-Bit Micro Computer)



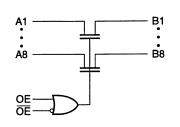


SN74CBT3345PW-X [TEXAS] (8 Bit Cross Bar Switch)

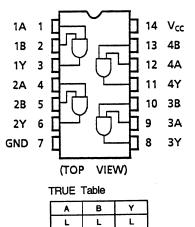


Inp	uts	Inputs/Outputs
OE	ŌĒ	A, B
Х	L	A=B
Н	Χ	A=B
L	Н	Z

- H: High Level
- L : Low Level
- X : Don't Care
- Z: High Impedance



■ SN74LV08APW-X [TEXAS] (Quad 2-Input AND Gates)



н

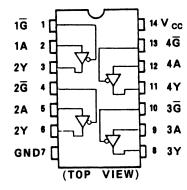
L

Н

L

L

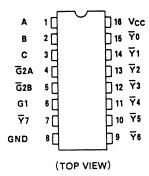
■ SN74LV125APW-X [TEXAS] (Quad Bus Buffer Gates With 3-State Outputs)



TC74HC	125 A	TRUE Table
INP	UTS	OUTPUTS
G	Α	Y
Н	Х	Z
L	L	L
L	Н	Н

- X : Don't Care
- Z : High Impedance

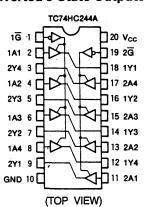
■ SN74LV138APW-X [TEXAS] (3-Line to 8-Line Decoders/Demultiplexers)



TRUE Table

	1	OUTPUTS						INPUTS						
SELECTED OUTPU									SELECT			ENABLE		
	₹7	∀ 6	∀ 5	₹ 4	Ÿ3	₹2	¥1	₹0	A	В	С	G2B	G2A	G1
NONE	н	н	н	н	н	н	н	н	Х	х	х	х	х	L
NONE	н	Н	н	н	н	н	н	н	X	X	х	x	н	x
NONE	н	н	н	Н	н	Н	н	Н	х	X	х	н	X	X
Ψo	Н	н	н	н	н	н	Н	L	L	L	L	L	L	н
Ÿ1	н	н	н	Н	Н	н	L	Н	Н	L	L	L	L	н
Y2	н	Н	н	Н	н	L	н	н	L	н	L	L	L	н
Ÿ3	Н	н	н	Н	L	н	н	н	Н	н	L	L	L	н
<u>₹</u> 4	н	Н	Н	L	Н	Н	н	н	L	L	н	L	L	н
Ÿ5	н	н	٦	Н	н	н	Н	н	Н	L	н	L	T	н
¥6	н	L	н	н	н	н	н	Н	L	н	н	L	L	н
¥7	L	н	н	Н	н	н	н	н	н	н	н	L	L	н

■ SN74LV244APW-X [TEXAS] (Octal Buffers AND Line Drivers With NON-Inverted 3-State Outputs)

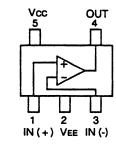


TRUE Table

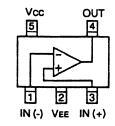
INP	OUTPUTS	
G	An	Ϋ́n
L	L	L
L	н	н
Н	Х	Z

X : Don't Care
Z : High Impedance

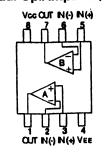
■ TA75S01F-X [TOSHIBA] (Single Op.Amp.)



■ TA75S393F-W [TOSHIBA] (Single Conparator)



TA75W01FU-X [TOSHIBA] (Dual Op.Amplifier)

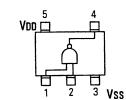


■ TA75W393FU-X [TOSHIBA] (Dual Conparater)

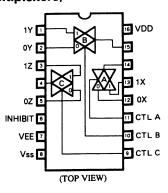
(Top View)

■ TC4S11F-X [TOSHIBA] (2 Input Single NAND Gate)

OUT IN(-) IN(+) VEE



■ TC4053BFT-X [TOSHIBA] (Triple 2 Channel Analog Multiplexers/ Demultiplexers)



TRUTH TABLE

CO	NTROL	"ON" CHANNEL				
INHIBIT	С	В	A	4053BP		
				4053BF		
L	L	L	L	0X, 0Y, 0Z		
L	L	L	Н	1X, 0Y,0Z		
L	L	н	٦	0X, 1Y, 0Z		
L	L	Н	Н	1X, 1Y, 0Z		
L	Η	L	L	0X, 0Y, 1Z		
٦	Н	L	H	1X, 0Y, 1Z		
L	Н	Н	L	0X, 1Y, 1Z		
L	Н	Н	Н	1X, 1Y, 1Z		
н	*	*	*	NOTE		
* Don't Care,						

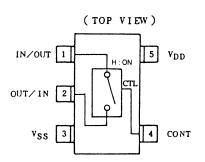
■ TC4S30F-W [TOSHIBA] (Single Exclusive OR Gate)



TRUE TABLE

INF	PUT	OUTPUT
Α	В	Х
L	L	L
L	Н	• н
Н	L	н
Н	Н	L
		i

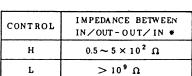
■ TC4S66F-X [TOSHIBA] (Bilateral Switch)



IN/OUT O

CONTROL O

 v_{SS}



※ See Electrical Characteristics

(Top View)

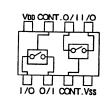
4 OUT Y

■ TC4S69F-X [TOSHIBA]

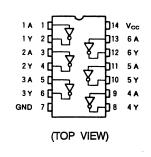
(Inverter Gate)

■ TC4W66FU-X [TOSHIBA] (Analog Switch)

-0 OUT/IN



■ TC74HC04AF-X [TOSHIBA] (Hex Inverters)

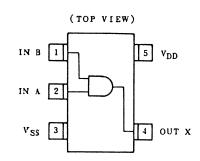


■ TC4S81F-X [TOSHIBA]

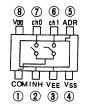
(2-Input AND Gate)

Vss 3





■ TC4W53F-X [TOSHIBA] (2-Channel Multiplexer)

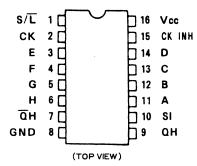


TRUE TA	ABLE	
CON INPL	TROL JT	ON CHANNEL
INH	ADR	
L	٦	ch0
L	Н	ch1
ы	*	NONE

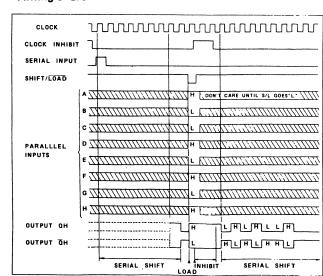
*Don't care

■ TC4W53FU-X [TOSHIBA] (See TC4W53F-X.)

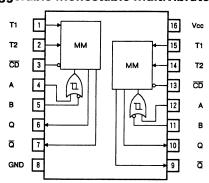
■ TC74HC165AF-X [TOSHIBA] (8-Bit Serial or Parallel-In/Serial Out Shift **Registers With Complementary Out)**



Timing chart



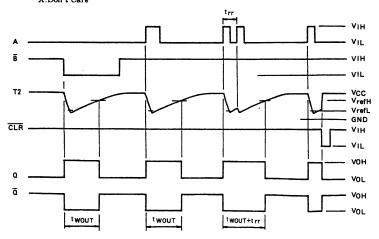
■ TC74HC4538AFS-X [TOSHIBA] (Dual Retriggerable Monostable Multivibrator)



TRUE Table INPUT OUTPUT

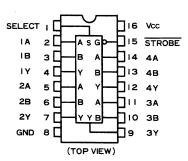
			001101		MOME
A	B	CD	Q	Q	NOTE
	Н	н	7	5	OUTPUT ENABLE
x	L	н	L	н	INHIBIT
H	х	н	L	Н	INHIBIT
L .	T.	н	<u></u>	7	OUTPUT ENABLE
X-	х	L	L	Н	INHIBIT

X:Don't Care



■ TC74VHC08FT-X [TOSHIBA] (See SN74LV08APW-X.)

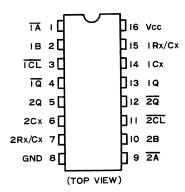
■ TC74VHC157FT-X [TOSHIBA] (Quad 2-Line to 1-Line Data Selectors/ **Multiplexers, NON-Inverted Data Outputs)**



	7	RUE Tab	ole			
	INPL	JTS		OUTPUT		
STROBE	STROBE SELECT A B					
н	х	х	х	L		
L	L	L	х	L		
Ļ	L	н	Х	н		
L	н	х	L	L		
L H X H H						
	X:DON	'T CARE				

4-90

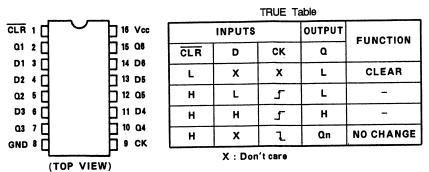
■ TC74VHC123AFT-X [TOSHIBA] (Dual Retriggerable Monostable Multivibrators)

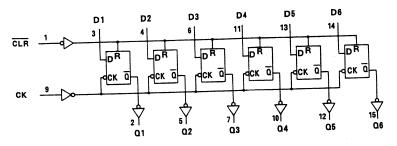


TRUE Table

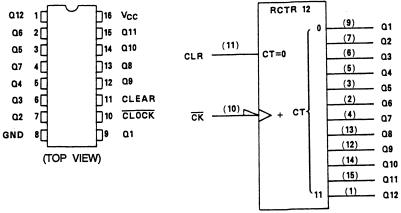
	INPUTS		OUTPUTS		NOTE
Ā	В	ŌL	ø	Q	NOTE
-L	н	Н	7	7	OUTPUT ENABLE
х	L	Н	L	Н	INHIBIT
Н	X	Н	L	Н	INHIBIT
L		Н	几	J	OUTPUT ENABLE
L	Н	_5	几	J	OUTPUT ENABLE
X	х	L	L	Н	INHIBIT

■ TC74VHC174FT-X [TOSHIBA] (HEX D-Type Flip Flop With Common Clock and direct Clear)





■ TC74VHC4040FT-X [TOSHIBA] (Synchronous 12-Bit Binary Ripple Counters)

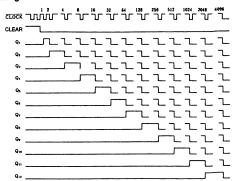


TRUTH TABLE

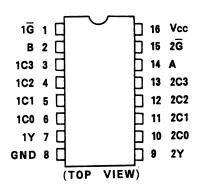
Ì	CLOCK	CLEAR	OUTPUT STATE
	×	Н	ALL OUTPUTS = "L"
		L	NO CHANGE
	7_	L	ADVANCE TO NEXT STATE

X ; Don't care

Timing chart



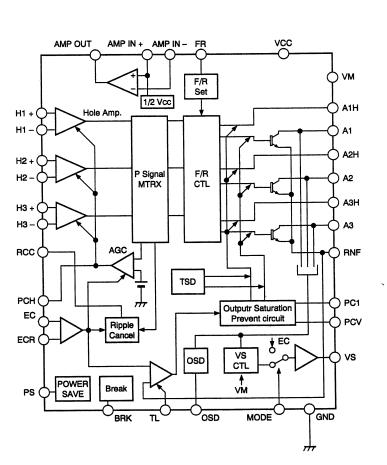
■ TC74VHC153FT-X [TOSHIBA] (Dual 4-Channel Multiplexer)



TRUTH TABLE

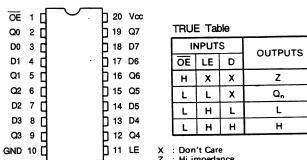
SELECT INPUTS			DATA INPUTS			STROBE	OUTF	Y TU
В	A	CO	C1	C2	C3	Ğ	HC153A	HC253A
X	X	X	. X	×	X	Н	L	, Z
L	L	L	X	X	X	L	L	L
L	L	Н	X	X	X	L	Н	Н
L	Н	X	L	X	X	L	L	L
L	Н	X	Н	X	X	L	Н	Н
Н	L	X	X	L	X	L	L	L
Н	L	X	X	H	X	L	Н	Н
Н	Н	X	X	X	L	L	L	L
Н	H	X	X	X	Н	L	Н	Н

X : Don't care Z : Hi impedance

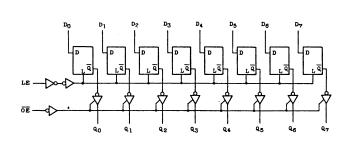


■ TC74VHC373FT-X [TOSHIBA] (Octal D-Type Latch With NON-Inverted 3-State Output)

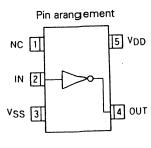
(Top View)



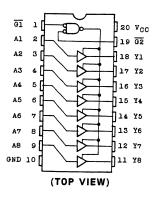
Z : Hi impedance
Qn : Q output level before the LE become "L".



■ TC7S04F-X [TOSHIBA] (Invertor)



■ TC74VHC541FT-X [TOSHIBA] (Octal Bus Buffer With Inverted 3-State Outputs)



TRUE Table

	ОИТРИТ		
G1	G2	Α	Y
L	L	Н	Н
L	L	L	L
Н	Х	X	Z
Х	Н	Х	Z

■ TC74VHC573FT-X [TOSHIBA] (Octal D-Type Latch With NON-Inverted 3-State Outputs)

ŌĒ	10	<u></u>	Vcc
D0	2 [19	QO
D1	3 [18	Q1
D2	4 [17	Q2
D3	5 <u>[</u>]	16	Q3
D4	6 [15	Q4
D5	7 [14	Q5
D6	8 [13	Q6
D7	9 [12	Q7
GND	10 [<u>-</u> [] 11	LE
	(TOP	VIEW)	

TRUE Table

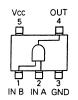
THUE TABLE					
11	INPUTS		OUTPUTS		
Œ	LE	D	Q		
Н	Х	Х	HZ		
L	٦	Х	Qn		
٦	H	L	L		
L	Н	Н	Н		

X : Don't care.
Z : Hi impedance

Q_n: Level of Q output before LE becomes "L".

TC74VHCT541AFTX [TOSHIBA] (See TC74VHC541FT-X.)

■ TC7S08F-X [TOSHIBA] (2 Input Single AND Gate)

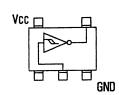


TRUE Table

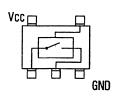
Α	В	Х		
L	L	L		
L	Н	L		
Η	L	L		
Ή	Н	Н		

TC7S08FU-X [TOSHIBA] (See TC7S08F-X.)

■ TC7S14FU-X [TOSHIBA] (Schmitt trigger)



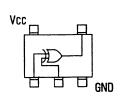
■ TC7S66FU-X [TOSHIBA] (Analog SW)



TC7SH04FU-X [TOSHIBA] (See TC7S04F-X.)

TC7SH08FU-X [TOSHIBA] (See TC7S08F-X.)

■ TC7SH86FU-X [TOSHIBA] (Single Exclusive OR Gate)



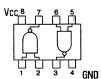
■ TC7SU04FU-X [TOSHIBA] (See TC7S04F-X.)

TC7SH32FU-X [TOSHIBA] (2 Input Single OR Gate)





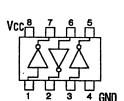
TC7W00FU-X [TOSHIBA] (2 Input Dual NAND Gate)



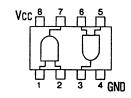
TRUE Table

Α	В	Х
L	L	Н
L	Н	Н
Н	L	Н
Н	Н	L

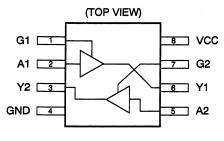
■ TC7W04FU-X [TOSHIBA] (Triple Inverter Gate)



■ TC7W08FU-X [TOSHIBA] (2 Input Dual AND Gate)



■ TC7W126FU-X [TOSHIBA] (Dual Bus Buffer)



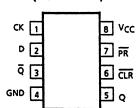
Truth Table

JTS	OUTPUTS
Α	Y
X	Z
L	L
Н	н

X : Don't Cate Z : High Impedance

■ TC7W74FU-X [TOSHIBA] (D-type Flip-Flop)

(TOP VIEW)



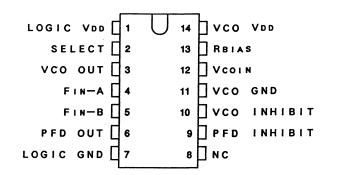
PR (7) S (5) Q
CK (1) C (3) Q
CLR (6) R

TRUE Table

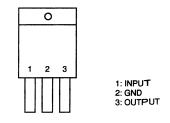
	INPUTS				PUTS	FUNCTION
CLR	PR	D	CK	Q	Q	FUNCTION
L	Н	×	×	L	Н	CLEAR
Н	L	×	×	Н	L	PRESET
L	L	×	×	Н	Н	_
Н	Н	L	1	L	Н	-
Н	Н	Η		Н	L	_
Н	Н	×	17	Qn	\overline{Q}_n	NO CHANGE

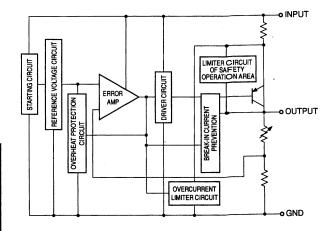
× : Don't care

■ TLC2932IPW [TEXAS] (PLL)

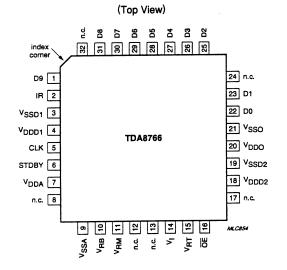


■ UPC29M05T-X [NEC] (Voltage Regulator)





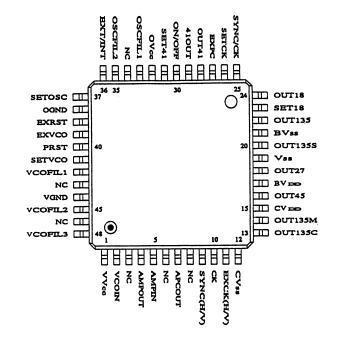
■ TDA8766G/C1 [PHILIPS] (10 Bit High-Speed 2.7 to 5.25V Analog-to-Digital Converter)

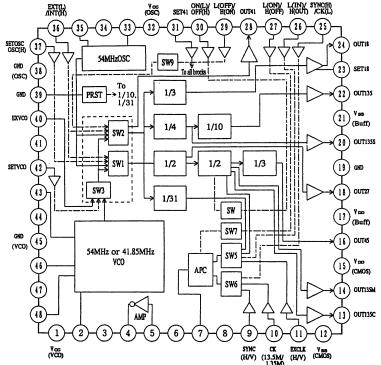


SYMBOL	PIN	DESCRIPTION
D9	1	data output; bit 9 (MSB)
IR	2	in range data output
V _{SSD1}	3	digital ground 1
V _{DDD1}	4	digital supply voltage 1 (2.7 to 5.25 V)
CLK	5	clock input
STDBY	6	standby mode input
V _{DDA}	7	analog supply voltage (2.7 to 5.25 V)
n.c.	8	not connected
V _{SSA}	9	analog ground
V _{RB}	10	reference voltage BOTTOM input
V _{RM}	11	reference voltage MIDDLE
n.c.	12	not connected
n.c.	13	not connected
Vı	14	analog input voltage
V _{RT}	15	reference voltage TOP input
ŌĒ	16	output enable input
n.c.	17	not connected

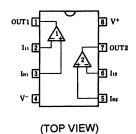
SYMBOL	PIN	DESCRIPTION
V _{DDD2}	18	digital supply voltage 2 (2.7 to 5.25 V)
V _{SSD2}	19	digital ground 2
V _{DDO}	20	positive supply voltage for output stage (2.5 to 5.25 V)
V _{SSO}	21	digital output ground
D0	22	data output; bit 0 (LSB)
D1	23	data output; bit 1
n.c.	24	not connected
D2	25	data output; bit 2
D3	26	data output; bit 3
D4	27	data output; bit 4
D5	28	data output; bit 5
D6	29	data output; bit 6
D7	30	data output; bit 7
D8	31	data output; bit 8
n.c.	32	not connected

■ UPC2384GA [NEC] (Digital VTR PLL)

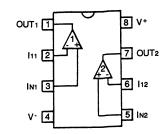




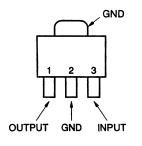
■ UPC4082G2-X [NEC] (J-FET Input Dual Op-Amplifire)

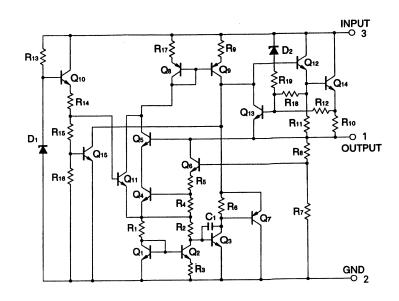


■ UPC812G2-X [NEC] (Op.Amp.)

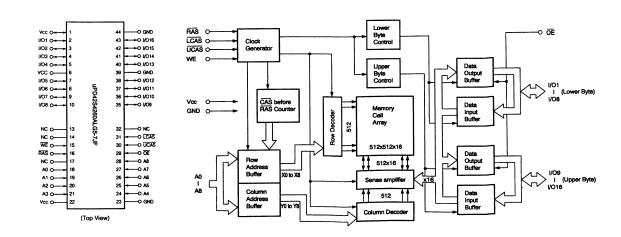


■ UPC78L05T-X [NEC] (Regulator)

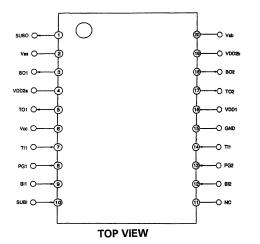




■ UPD42S4260ALG5 [NEC] (3.3V 4M Bit Dynamic RAM)

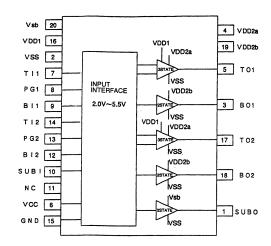


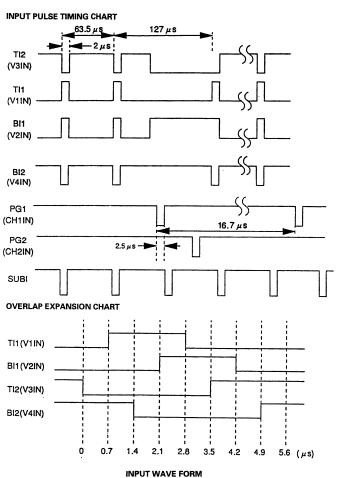
■ UPD16510GR-X [NEC] (Level Shifter)



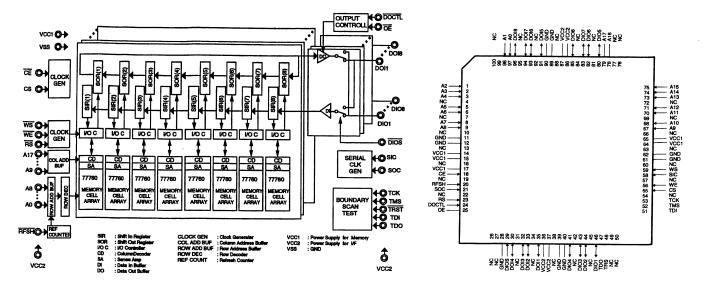
	INP	UT		OUTPUT		
T I 1, 2	PG	B I 1.2	SUBI	TO1, 2	BO1, 2	subo
L	Н	-	-	Vila	-	-
Н	Н	-	-	VL	-	-
L	L	-	-	VII	-	-
н	L	-	-	VL	-	-
-	-	L	-	-	VMb	-
-	-	н	-	-	VL	-
-	-	-	L			VL
-	_	-	н			VHH

(VL=VSS, VHa=V0D2a, VMb=VDD2b, VH=VDD1, VHH=Vsb)



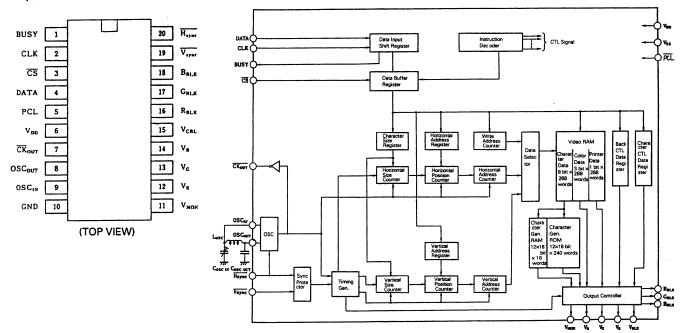


UPD489001 [NEC] (5M Bit Field Buffer)

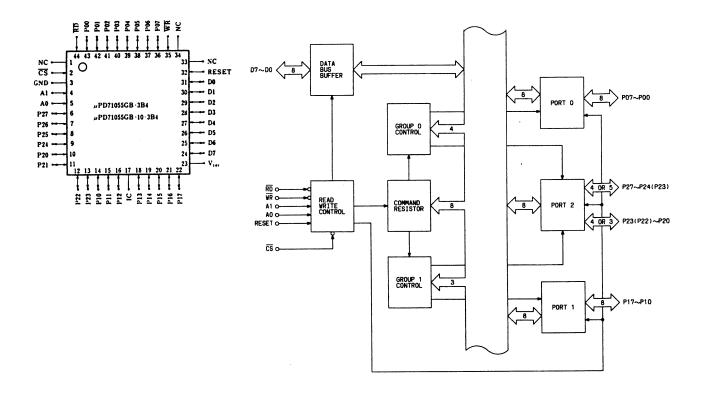


Pin No.	Label	In/Out	Description	Pin No.	Label	In/Out	Description
1	A2	In		51	TDI	_	
2	A3	ln ln	Sh. #8	52	TMS	+ -	<u> </u>
3	M	in	Shuffle memory address (18 MHz, 18 bit)	53	TCK	+	-
4	NC NC	-		54	NC		Not used
		-	Not used			-	
5	A5	in	Shuffle memory address (18 MHz, 18 bit)	55	cs	<u> </u>	High fixed
6	A6	In		56	WE	In	Write enable from SHUFFLE IC
7	NC	-	Not used	57	NC	-	Not used
8	A7	In	Shuffle memory address (18 MHz, 18 bit)	58	SIC	In	Clock input (18 MHz)
9	A8	In	on the state of th	59	ws	in	Shuffle memory control write strobe
10	NC	-	Not used .	60	NC	-	Not used
11	GND	-	C	61	GND	-	0
12	GND	-	Ground	62	GND	-	Ground
13	NC	-	Not used	63	NC	1 -	Not used
14	VCC1	-		64	VCC1	T -	
15	VCC1	-	Power supply (+3 V)	65	VCC1	-	Power supply (+3 V)
16	NC	- -	Not used	66	NC	+	Not used
17	VCC1		TWI GOOD	67	A9	in	
18	CE	In	Shuffle memory chip enable	68	A10	in in	Shuffle memory address (18 MHz, 18 bit)
19	NC			69	NC	- " -	Not used
20	RESH	<u> </u>	Not used	70	A11	- In	1401 0580
		-	-				Shuffle memory address (18 MHz, 18 bit)
21	soc	In	Clock input (18 MHz) from CLK OSC IC	71	A12	In	
22	NC	-	Not used	72	NC	<u> </u>	Not used
23	RS	In	Shuffle memory read strobe	73	A13	In	
	DOCTL	In	Shuffle memory data output control	74	A14	In	Shuffle memory address (18 MHz, 18 bit)
25	OE	-	Low fixed	75	A15	In	
26	NC	-	Not used	76	NC	-	Not used
27	NC	-	Not used	77	NC	-	Not used
28	GND	-	Ground	78	A16	In	o
29	DIOS	In	Shuffle memory data I/O select	79	A17	In	Shuffle memory address (18 MHz, 18 bit)
30	DOI4	In/Out	Shuffle memory data (8 bit)	80	DIO5	In/Out	Shuffle memory data (8 bit)
31	NC	-	Not used	81	NC	-	Not used
32	DOI3	In/Out		82	DIO6	In/Out	
	DOI2	In/Out	Shuffle memory data (8 bit)	83	DIO7	In/Out	Shuffle memory data (8 bit)
	NC	-	Not used	84	NC	-	Not used
	DOI1	In/Out	Shuffle memory data (8 bit)	85	DIO8	In/Out	Shuffle memory data (8 bit)
	VCC2		Shaline memory data (6 bit)	86	VCC2		Statile Illelitory data (6 bit)
36		-	Power supply (+3 V)	87	VCC2	<u> </u>	Power supply (+3 V)
37	VCC2	-				-	
38	NC	-	Not used	88	NC	-	Not used
39	GND	•	Ground	89	GND	-	Ground
	GND	-		90	GND	-	
41	DIO4	In/Out	Shuffle memory data (8 bit)	91	DOI5	In/Out	Shuffle memory data (8 bit)
42	NC	•	Not used	92	NC	-	Not used
43	DIOS	In/Out	Charles data (DAM)	93	DOI6	In/Out	Shuffe manner data (0 km
44	DIOS	In/Out	Shuffle memory data (8 bit)	94	DOI7	In/Out	Shuffle memory data (8 bit)
45	NC	-	Not used	95	NC	-	Not used
	DIO1		Shuffle memory data (8 bit)	96	DOIS		Shuffle memory data (8 bit)
	TDO		-	97	AO	In	Shuffle memory address (18 MHz, 18 bit)
48	TRS	-		96	A1	in in	The state of the s
	NC		Not used	99	NC		
							Not used
50	NC	-	Not used	100	NC	-	Not used

■ UPD6453GT-101 [NEC] (On Screen Charactor Generator)



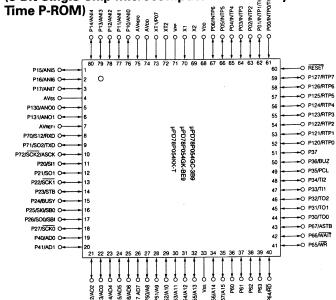
■ UPD71055GB-10 [NEC] (Parallel Input/Output Port)



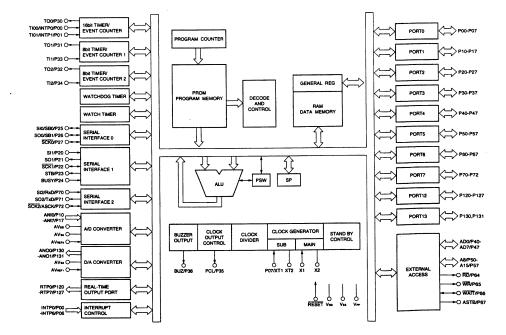
PLSC1237 [JVC] PLSC1262

PLSC1263

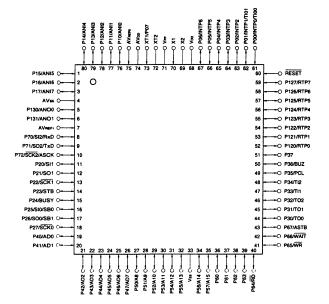
(8 Bit Single Chip Microcomputer with 32k Byte One



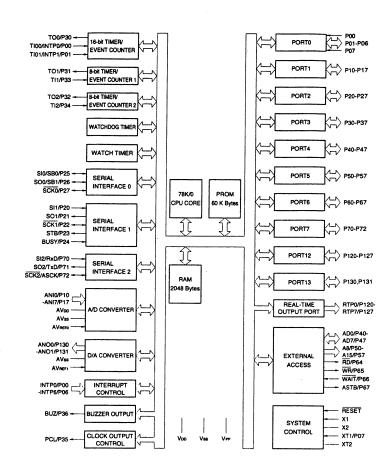
P00-P07	: Port0	SB0, SB1	:	Serial Bus	WAIT	: Wait
P10-P17	: Port1	SI0-SI2	:	Serial Input	ASTB	: Address Strobe
P20-P27	: Port2	SO0-SO2	:	Serial Output	X1, X2	: Crystal (Main System Clock)
P30-P37	: Port3	SCK0-SCK2	:	Serial Clock	XT1, XT2	: Crystal (Subsystem Clock)
P40-P47	: Port4	RxD	:	Receive Data	RESET	: Reset
P50-P57	: Port5	TxD	:	Transmit Data	ANIO-ANI7	: Analog Input
P60-P67	: Port6	ASCK	:	Asynchronous Serial Clock	ANO0, ANO1	: Analog Output
P70-P72	: Port7	PCL	:	Programmable Clock	AVpo	: Analog Power Supply
P120-P127	: Port12	BUZ	:	Buzzer Clock	AVas	: Analog Ground
P130, P131	: Port13	STB	:	Strobe	AVREFO. 1	: Analog Reference Voltage
RTP0-RTP7	: Real-Time Output Port	BUSY	:	Busy	Voo	: Power Supply
INTPO-INTP6	: Interrupt From Peripherals	ADO-AD7	:	Address/Date Bus	VP P	: Programming Power Supply
TI00, TI01	: Timer Input	A8-A15	:	Address Bus	Vss	: Ground
TI1, TI2	: Timer Input	RD	:	Read Strobe		



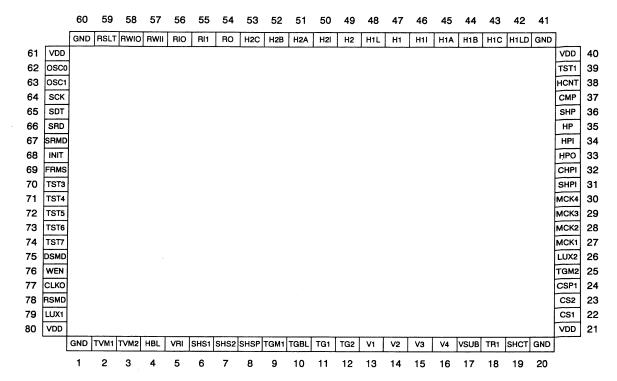
■ PLSC1236 [JVC] (8 Bit Single Chip Microcomputer with 60k Byte One Time P-ROM)



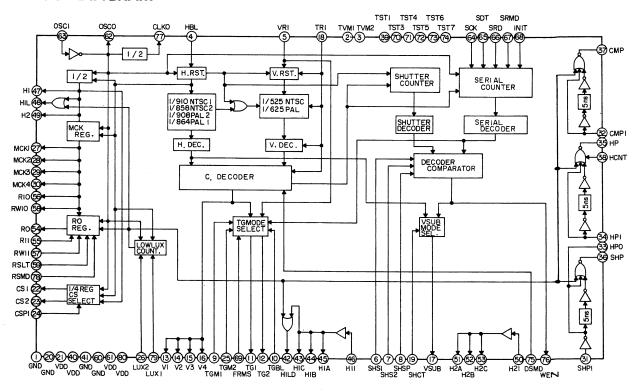
P00-P07	: Port0	SBO, SB1	: Serial Bus	WAIT	: Wait
P10-P17	: Port1	SI0-SI2	: Serial Input	ASTB	: Address Strobe
P20-P27	: Port2	SO0-SO2	: Serial Output	X1, X2	: Crystal (Main System Clock)
P30-P37	: Port3	SCK0-SCK2	: Serial Clock	XT1, XT2	: Crystal (Subsystem Clock)
P40-P47	: Port4	RxD	: Receive Data	RESET	: Reset
P50-P57	: Port5	TxD	: Transmit Data	ANIO-ANI7	: Analog Input
P60-P67	: Port6	ASCK	: Asynchronous Serial Clock	ANO0, ANO1	: Analog Output
P70-P72	: Port7	PCL	: Programmable Clock	AVno	: Analog Power Supply
P120-P127	: Port12	BUZ	: Buzzer Clock	AVss	: Analog Ground
P130, P131	: Port13	STB	: Strobe	AVREFO, 1	: Analog Reference Voltage
RTP0-RTP7	: Real-Time Output Port	BUSY	: Busy	Voo	: Power Supply
INTPO-INTP6	: Interrupt from Peripherals	ADO-AD7	: Address/Data Bus	VPP	: Programming Power Supply
TI00, TI01	: Timer Input	A8-A15	: Address Bus	Vss	: Ground
TI1, TI2	: Timer Input	RD	: Read Strobe		
TO0-TO2	: Timer Output	WA	* Write Strobe		



■ UPD9438BGK-BE9 [NEC] (Timing Generator)



BLOCK DIAGRAM



● Pin function (UPD9438GK)

			Pin No. Pin Name			
2	osco	Oscillation out	tput			
	Ш	0				•
			Type of buffer -	SU : Schmitt TR : Tri-state	PU : Pull-up Figure : Outpu	PD : Pull-down t current (mA)
			Input and/or outpPolarity	out - 1 : Input	O : Output	
No.	Symbol			Des	scription	
1	GND	Grounding				
		 				

		Polarity						
No.	Symbol		Description					
1	GND	Grounding						
2	TVM1	TV mode 1		N.T.O. 4	LITOO	DALO	DAL 1	_
	_	I PD		NTSC 1 1820 FH	NTSC 2	1	4	4
3	TVM2	TV mode 2	TVM1	L	Н	L	Н	
	_	I PD	TVM2	L	L	Н	<u> </u>	
4	HBL	Horizontal B lanking inpu	ıt (øHBLK)					
	¬	•	Horizontal	SYNC. inp		to be conne	ected with IF	FHB of SYNC generator.
	Ш	I SH PU		g edge is o	detected.			
5	VRI	EXT. vertical SYNC input		NC. input	terminal to	be connect	ed with IFVS	SA of sync generator. The
				ge is dete				
6	SHS1	Shutter speed 1						
		I PD				FIELD	FRAME	
7	SHS2	Shutter speed 2	SHS2		SHSP = L	SHSP = H	SHSP = H	
		I PD	L	L H	1/60 1/100	1/60 1/30	1/30 1/15	
8	SHSP	Shutter speed setting	Н	L	1/2000 1/10000	1/7.5 1/3.75	1/3.75 1/1.875	
	0,,,0,		H #55	H				(nin 12) on the reference
								(pin 12) as the reference.
9	TGM1	Storage Mode 1 •	Input term DSMD (pi	ninal for sto n 75) and 1	ore mode s TGM2 (pin 2	etting. Use [.] 25). (Refer to	this terminal o the last pa	in combination with ge of this description of
		I PD	pin function					
10	TGBL	Transfer gate blanking	Slow chut	tar enaad i	innut for m	ulti-speed sh	nutter	
						se at the ris		
11	TG1	Transfer gate pulse 1						
		0 9	Transfer gate drive pulse to transfer signal from photodiode to the vertical					
12	TG2	Transfer gate pulse 2				_		
	1	0 9		jate drive p /3). (pin 15		nsfer signal	from photod	liode to the vertical

No.	Symbol	Description							
13	V1	V. transfer pulse 1							
		Vertical transfer register drive pulse 9							
14	V2	V. transfer pulse 2							
	\square	Vertical transfer register drive pulse O 9							
15	V3	V. transfer pulse 3							
	П	Vertical transfer register drive pulse 9							
16	V4	V. transfer pulse 4 ■ Vertical transfer register drive pulse							
		O 9							
17	VSUB	Board shutter pulse Board shutter pulse to operate VOD shutter							
	_	O 13							
18	TRI	Random shutter function reset mode selection							
		L: Sync reset mode H: Sync non-reset mode							
19	SHCT	Shutter control							
19	SHCI	 Terminal to control shutter speed of multi-speed shutter. 							
		When this terminal is used, set the serial shutter to 1/10000. High level stops VSUB (pin 17) output.							
20	GND	Grounding							
21	VDD	+5 V power supply							
22	CS1	Color sampling pulse 1 • Sampling pulse output for color separation sample holding							
	П	O 9 CSP2 CSP1 CS1 CS2							
23	CS2	Color compling pulse 2							
23	032	Color sampling pulse 2 L H MCK2 MCK2 H L MCK3 MCK3							
		O 9 H H MCK4 MCK4							
24	CSP1	Color sampling pulse phase setting 1							
	_	Phases of CS1 (pin 22) and CS2 (pin 23) are settable by this pulse. Phases of CS1 (pin 22) and CS2 (pin 23) are settable by this pulse.							
25	TGM2	Store mode 2 Input terminal for store mode setting. Use this terminal in combination with							
	_	I PD DSMD (pin 75) and TGM1 (pin 9). (Refer to the last page of this description of pin functions.)							
26	LUX2	Low lux mode 2 Low Lux setting terminal 2. L: Corresponding to CDS, H: Corresponding to RDS							
		I PU Refer to the usage example and Lolux mode tables.							
27	MCK1	Main clock 1							
		Main clock fck output terminal. Output signal having the same phase as H1 (pin 47).							
28	MCK2	Main clock 2							
		 Main clock fck output terminal. O g Output signal whose phase is 90° delayed from H1 (pin 47). 							

No.	Symbol		Description						
29	МСКЗ	Main clock 3							
		0 9	 Main clock fck output terminal. Output signal whose phase is 180° delayed from H1 (No. 47). 						
30	MCK4	Main clock 4							
	ПΙ	0 9	 Main clock fck output terminal. Output signal whose phase is 270° delayed from H1 (No. 47). 						
31	SHP1	Sample holding pulse							
	ПІ	I SH	 Input terminal to receive SHP (No. 36) output signal. Input signal is equivalent to main clock. 						
32	CMPI	Clamp pulse input	- input signal is equivalent to main clock.						
	ПІ	I SH	• Input terminal to receive SHP (No. 36) output signal.						
33	HPO	Half pitch output	Input signal is equivalent to main clock.						
	П	 	• Output signal approx. 20 ns behind of SHP (No. 36) output.						
		0 9	To be connected with HP1 (No. 34) through capacitor and resistor.						
34	HPI	Half pitch input	• Input terminal for fine adjustment of HP (No. 35) output.						
		I SH	To be connected with HPO (No. 33) through capacitor and resistor.						
35	HP	HP Half pitch	Half pitch signal is used as a sampling one.						
		0 9	· Trail pitch signal is used as a sampling one.						
36	SHP	Sample holding pulse	o To consider since						
	Л	O 9	• To sample video signal.						
37	CMP	Clamp pulse							
	J	0 9	To clamp video siganl.						
38	HCNT	Half pitch control							
	_	I SH PD	 To fix HP (No. 35) pulse at High level. L: Normal mode output H: High level fixing output 						
39	TST1	Test pin 1	g. co.p.s.						
		I PD	• Should be open in general.						
40	VDD	+5 V power supply							
41	GND	Grounding							
42	H1LD	H. final gate transfer pulse for 3-CCD	Horizontal drive pulse output that has High level in horizontal blanking period.						
		0 9	 When set to the Lolux mode corresponding to RDS, the central part of drive signal output is taken off. (Refer to the Lolux mode table) 						
43	H1C	H. transfer pulse for 3-							
	П	•	Horizontal drive pulse output that has High level in horizontal blanking period						
44	H1B	H. transfer pulse for 3-	CCD						
		· · · · · ·	Horizontal drive pulse output that has High level in horizontal blanking period						
45	H1A		transfer pulse for 3-CCD						
+5		<u> </u>	Horizontal drive pulse output that has High level in horizontal blanking period						
	I L	0 13							

No.	Symbol	Description
46	H11	H. transfer pulse input for 3-CCD
	П	 Input terminal to distribute signal to horizontal transfer pulse terminals for 3-CCD. Connect with H1 (No. 47) for use of 3-CCD camera.
47	H1	H. transfer pulse
		Horizontal drive signal output that has High level in horizontal blanking period. Connect with H1I (No. 46) for use of 3-CCD camera.
48	H1L	 H. final gate transfer pulse O 9 Horizontal drive signal output that has High level in horizontal blanking period. When set to the Lolux mode corresponding to RDS, the central part of drive signal output is taken off. (Refer to the Lolux mode table)
49	H2	H. transfer pulse
		Horizontal drive signal output that has Low level in horizontal blanking period. Connect with H2I (No. 50) for use of 3-CCD camera.
50	H2I	H. transfer pulse input for 3-CCD
	П	 Input terminal to distribute signal to horizontal transfer pulse terminals for 3-CCD. Connect with H2 (No. 49) for use of 3-CCD camera.
51	H2A	H. transfer pulse for 3-CCD
	П	Horizontal drive signal output that has Low level in horizontal blanking period.
52	H2B	H. transfer pulse for 3-CCD
		Horfzontal drive signal output that has Low level in horizontal blanking period.
53	H2C	H. transfer pulse for 3-CCD
		Horizontal drive signal output that has Low level in horizontal blanking period.
54	RO	H. output reset
	几	O 9 CCD output reset pulse terminal. This pulse is added with DC component and supplied to ØR terminal of CCD.
55	RII	H. output reset timing input
,	П	• Input terminal to adjust output timing of RO (No. 54) with external input.
56	RIO	I PU SH • Active when RSLT (No. 59) has High level. To be connected with RIO (No. 56).
30		H. output reset timing output Output terminal to adjust output timing of RO (No. 54) with external input.
	I LJ	O 9 • To be connected with RII (No. 55).
57	RWII	H. output reset pulse width setting input Input terminal to adjust pulse width of RO (No. 54) with external input.
	ПЦ	I PU SH • Active when RSLT (No. 59) has High level. To be connected with RWIO (No. 58).
58	RWIO	H. output reset pulse width setting output Output terminal to adjust pulse width of RO (No. 54) with external input.
	П	O 9 • To be connected with RWII (No. 57).
59	RSLT	H. output reset switching
	_	Input terminal to switch setting mode of RO (No. 54) output. L : Internal setting
60	GND	Grounding
61	VDD	+5 V power supply
62	osco	Oscillator output
	П	O Output terminal of built-in oscillation circuit

No.	Symbol		Description
63	OSCI	Oscillator input	
	Ш		Input terminal of built-in oscillator circuit
64	SCK	Serial clock	
	П		 Clock input terminal for serial interface. Reads in at the pulse rise and inputs 1/4 frequency of original oscillation or lower.
65	SDT	Serial data	
			Data input terminal for serial interface. Input data is positive logic.
			Sequential reading to start with LSB.
66	SRD	Reception enable sign	Enable signal output terminal for serial interface to inform microprocessor whether
			it is enabled for data reception or disabled. L : Enabled for data reception H : Disabled for data reception
		0 9	
67	SRMD	Reception mode swite	•L : Reception is possible only in V. blanking period.
			When reception does not finish in V. blanking period : Ineffective
		I PD	H : Reception is always possible.
68	INIT	Serial reset	• L : Disables serial interface from operation, or resets it forcibly (hard resetting).
		1	H : Enables serial interface for original operation.
69	FRMS	Frame select	1-pixel or 2-pixel read-out field is selectable at a unit of frame. L: Ist and 2nd fields read-out
		I PD	H : 3rd and 4th fields read-out
70	TST3	Test pin 3	• Should be open in general.
		I PD	- Should be open in general.
71	TST4	Test pin 4	Should be open in general.
		I PD	Chould be open in general
72	TST5	Test pin 5	• Should be open in general.
		I PD	
73	TST6	Test pin 6	· • Should be open in general.
		I PD	
74	TST7	Test pin 7	Should be open in general.
		I PD	
75	DSMD	Device mode	• Switching terminal for 1/3-CCD or 2/3-CCD.
	_	I PD	L: Conforming to 1/3-CCD H: Conforming to 2/3-CCD
76	WEN	Write enable	Timing pulse output to write data in external memory at slow shutter speed. At parmel shutter appeal output signal is same with VD.
		0 13	 At normal shutter speed, output signal is same with VD. But it becomes 0.5H delayed signal in 2nd field.
77	CLKO	Clock output	
	П	0 13	Half divided output of oscillation frequency
78	RSMD	Switching of H. outpu	ıt reset pulse polarity
			 To switch output polarity of RO (No. 54).
<u> </u>	-	O PD	L : Positive H : Negative
79	LUX1	Low lux mode	Low lux setting terminal L : Normal mode
		I PD	Refer to the low lux mode table.
80	VDD	+5 V power supply	

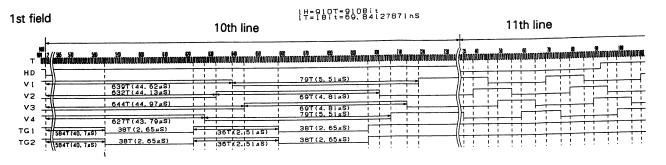
• When CCD used and read-out method

DSMD	TGM2	TGM1	When CCD used	Read-out method
L	L	L	1/3 CCD	Field
L	L	Ι	1/3 CCD	Frame
L	Н	L	Inhabit	Inhabit
L	Н	Η	Inhabit	Inhabit
Н	L	L	2/3 CCD	Field
Н	L	Τ	2/3 CCD	Frame
Н	Н	L	2/3 CCD	2 pixels
Н	Н	Н	2/3 CCD	1 pixel

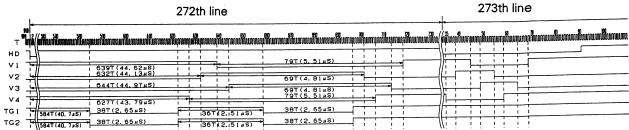
 Lolux mode table 	•	olux mo	de table
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JX2	LUX1	Mode
L	L	Normal
L	Н	CDS
Н	L	Normal
Н	Н	RDS

[NTSC] 2/3" CCD H-TIMING

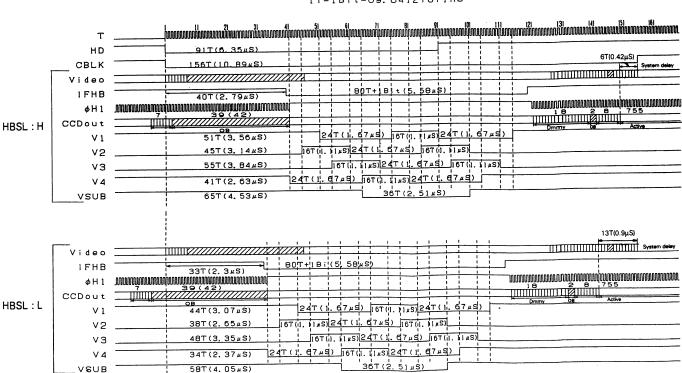


2nd field



[NTSC] 2/3" CCD H-TIMING

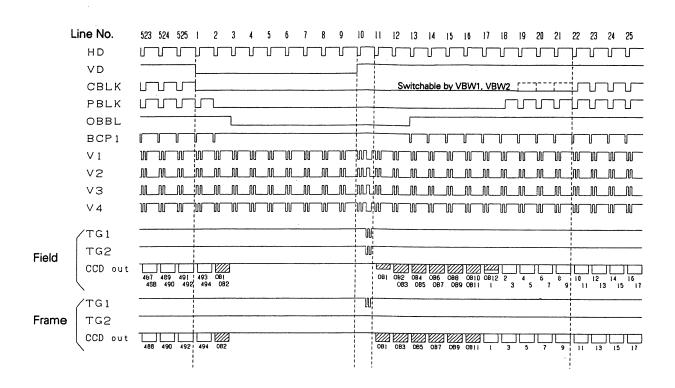
1H=910T=910Bit 1T=1Bit=69.84127871nS



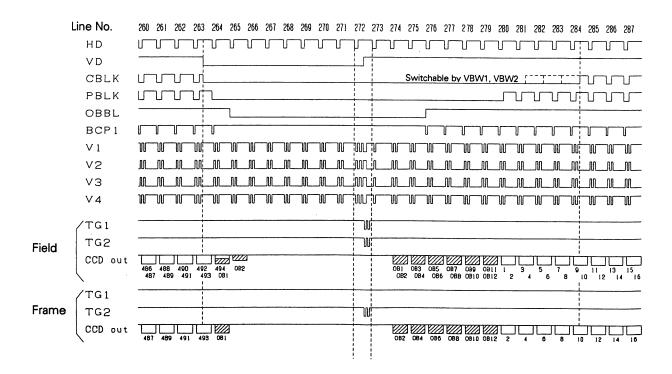
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4-99

[NTSC] 2/3" CCD V-TIMING (1st field)

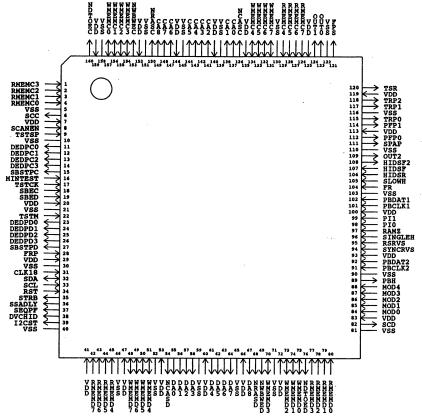


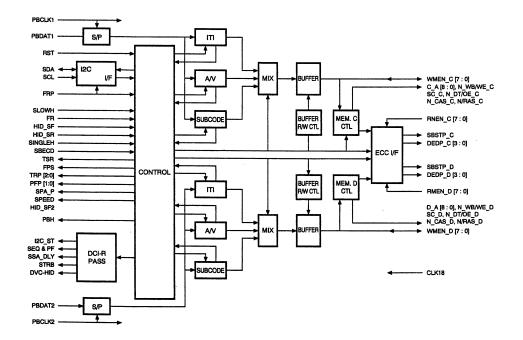
[NTSC] 2/3" CCD V-TIMING (2nd field)



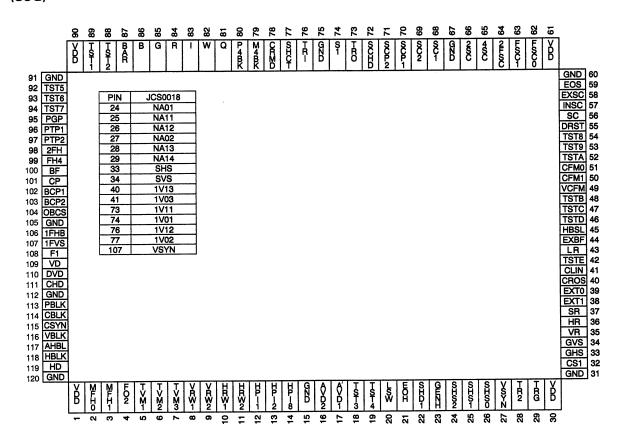
(Digital Channel Integrated Circuit (DCI) for Play back)

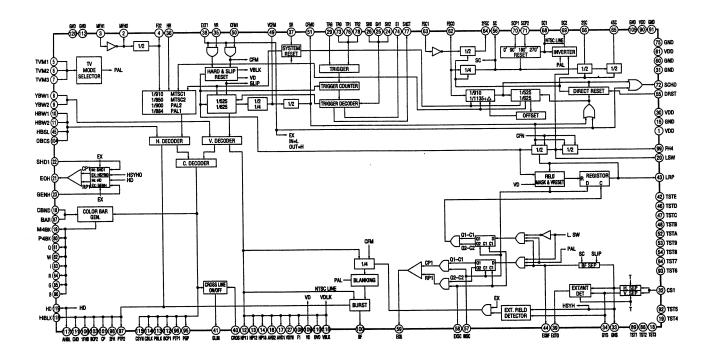
■ JCL0030 [JVC]





■ JCS0027 [JVC] (SSG)





Term	inal Spe	ecifications of JCS0027 (4th Revision)	Pin No.	Pin Name	Function
		5	12	HP11	H. pulse 11
		Pin No.	'-		H. pulse to be active at 11H, 13H, 15H
		——— Pin Name			and 17H.
Ġ.		0 1111111111111111111111111111111111111			0 9
2 0	osco	Oscillation Output	13	HP12	H. pulse 12
เ	Л				H. pulse to be active at 12H and 14H.
	1 1			7	0 9
	.	L Type of Buffer SU : Schmitt PU : Pull-up PD : Pull-down	14	HP18	H. pulse 18
		TR : Tri-state BI : Bi-directional			H. pulse to be active at 18H.
		Number : Output current (mA)		\Box	0 9
	-	Input/Output			
		Polarity	15	GND	Ground
			16	AVD2	Pre-vertical drive pulse 2
Pin No.	Pin Name	Function			Vertical drive pulse whose phase is 8H
1	VDD	+5 Power supply			ahead of VD pulse.
2	MFHO	Synchronizing oscillation output			Functions as subcarrier blanking for
		Output terminal for built-in oscillator			SECAM system.
_	"	0	17	AVD1	Pre-vertical drive pulse 1
3	MFHI	Synchronizing oscillation input			Vertical drive pulse whose phase is 1H
		Input terminal for built-in oscillator			ahead of VD pulse.
4	F02	1/2 divided output		T	
4		1/2 divided output of synchronizing oscil-	18	TST3	Test terminal 3
		0 9 lator			Set this terminal open in general.
5	TVM1	TV mode 1			I PU
			19	TST4	Test terminal 4
		I PU NTSC1 NTSC2 PAL2 PAL1 PALM SECAM			Set this terminal open in general.
	TVAAA	1820FH 1716FH 1816FH 1728FH 1716FH 1716FH 1716FH			I PU
6	TVM2	TVM1 L H L H L H	20	LSW	Line switch
	-	TVM2 L L H H L L	20.	LOVV	Half-divided FH output.
-	 	TVM3 L L L H H			Switches color difference signal of neigh-
7	TVM3	TV mode 3		١.,	boring lines by 180° in phase for PAL system.
					0 9
		PU	21	EOH	H. synchronizing digital phase comparison output
8	VBW1	V. blanking control 1 VBW1 L H L H			As compared with leading edge of SHDI; when internal HD has advanced phase: Low
		VBW2 L L H H			level.
		I PU NTSC1 21H 20H 19H 18H			when internal HD has lagged phase: High level, when internal HD is in-phase: High impedance.
-		NTSC 2 21H 20H 19H 18H		-	O TR 13
9	VBW2		22	SHDI	H. synchronizing digital phase comparison input
		PAL2 26H 25H 24H 23H PALM 21H 20H 19H 18H	22	31101	(trailing detection)
		SECAM 26H 25H 24H 23H			Input of horizontal drive signal originating
		I PU	-		from subcarrier. Active when EXTI is low level. When this
10	HBW [*]	H. blanking control 1			is inactive, GHS (No. 33) is internally con-
		HBW2 L L H H		7	I SH PU nected.
		NTSC1 157T 156T 154T 152T	23	GENH	
_		I PU NTSC2 143T 147T 146T 152T			(trailing detection)
1	I HBW:		11		Input for external synchronization, horizontal synchronization and phase adjust-
		PAL2 170T 167T 164T 161T PALM 148T 147T 146T 144T			ment. Active when EXTI is high level.
	_	DECAM 162T 150T 156T 153T			When this is inactive, HD (No. 119) is internally connected.
1	1	1 PU SECAM 1021 1391 1301 1301	11	-	I SH PU Internally connect €d.

Pin	Pin		Function				-	Pin	Pin	T	Function
No. 24	Name SHS2	Shutter speed setting 2						No. 35	Name VR	Vertical re	
24	SH3Z	Random shutter setting 2						35	VH	vertical re	
		function (Refer to the				I 61					External synchronizing input by slip system. If this system is input in vertical
		specifications.)	SHS2	SHS1	SHS0	Shutte	r speed PAL				sync. period, hard reset is activated. Input
				L	L	1/60	1/50			<u></u>	in other period stops internal counter for a
		I PU			ļ					I PU	period of pulse width.
25	SHS1	Shutter speed	L	L	Н	1/100	1/120	36	HR	Horizontal	reset
		setting 1 Random shutter	L	н	L	1/2	250				December havingstell assuments 4T hafara
		setting function (Refer		Н	н	1/5	500				Presets horizontal component 1T before rise of HD. Jitters in a period shorter than
		to the specifications.)	 								140 ns are absorbed. However, operation
		I PU	Н	L	L	1/1	000		~	I PU	is not secured for continuous input.
26	SHS0	Shutter speed	н	L	н	1/2	2000	37	SR	System re	eset
		setting 0	н	Н	L	1/4	000	•			Inside of IC is forcibly initialized regardless
		Random shutter	 								of internal or external synchronization.
		setting function (Refer to the specifications.)	н	Н	Н	1/1	0000				VR and HR inputs are ineffective. Jitters
		 '							¬		in a period shorter than 140 ns are absorbed.
		I PU								I PU	
27	VSYN	V. sync. output						38	EXTI	Internal/Ex	cternal synchronization setting input
		Vertical sy pulse width		izing	signa	ıl of \	/. EQ				L : Internal synchronization
	–	·									H : External synchronization
	<u></u>	0 9								I PD	
28	TR2	Sync. reset mode settin	ng					39	EXTO	Internal/Ex	ternal synchronization setting output
		For sync. r	eset n	node	setting	g wher	n ran-				L: Without CSI input
		dom shutte	r settin	g fun	ctions	is activ	/ated.				After detection of no SHS, another SHS is not detected for a period of 8 fields.
											H: With CSI input
		I PU									After detection of SHS, 200 or more
29	TRG	Trigger input								0 9	SHS's are detected in 1 vertical period.
		Trigger inpu						40	CROS	Cross ON/	OFF input
		setting fun shutter spe			er to t	he ran	idom				·
		 	Ciricatio)(13. _j							L: To stop cross output H: To activate cross output operation
		I PU									For detail, refer to supplementary specifi-
30	VDD	+5V power supply								I PD	cations of respective terminals.
								41	CLIN	Cross outp	nut
								41	CLIN	Cioss out	out
31	GND	Ground									To output a cross in the center of screen.
											For detail, refer to supplementary specifications of respective terminals.
32	CSI	Ext. composite sync. sig	gnal inp	out					几		cations of respective terminals.
		Ta tanana	tor==!		oles s		ni=:			0 9	
		To input ext						42	TSTE	Test termi	nai E
		tion and ext							_		Set this terminal open in general.
	T	I SH PU								I PU	
33	GHS	Horizontal separate syn	nc.					43	LR	Line reset	
											When EXTI is external synchronization
		Horizontal composite s									(High level), setting signal is supplied to
		alent pulse				a. 1/4 l	oquiv-				LSW. When internal burst is ahead of external burst in phase, High level is out-
	T	0 9									put.
34	GVS	Vertical separate sync.									When internal burst is behind external burst in phase, Low level is output (for 6
		, ,									clocks of SC).
		Vertical se composite s									Phase comparison is not operated for one
		alent pulse				ui. 1/4 1	cquiv-				field after output. For detail, refer to supplementary specifi-
	T	0 9			•				丁	0 9	cations of respective terminals.
		" "								الاا	

Pin No.	Pin Name	Function	Pin No.	Pin Name	Function
44	EXBF	Brust flag separate output	54	TST8	Test terminal 8
	·	With detection of one or more H. sync pulse from CSI input, pulse whose width is for 6 cycles of subcarrier is output. For details, refer to supplementary specifications of respective terminals.			Set this terminal open in general.
45	HBSL	H. blanking reset	-	DDCT	
46	TSTD	To switch output position of IFHB (106). L: System delay 900 ns approx. H: System delay 450 ns approx. I PU Test terminal D Set this terminal open in general.	55	DRST	When EXTI is low level, the following operations are realized. To switch reset operation of horizontal counter for subcarrier. To reset color frame synchronizing with horizontal counter with High level; To reset color frame with Low level.
		BI PU 9			·
47	TSTC	Test terminal C	56	sc	Subcarrier output
		Set this terminal open in general.			To monitor subcarrier signal connected internally with digital phase comparator. When phase of SC1 (68) is 0°, this output is inphase.
48	TSTB	Test terminal B	57	INSC	0 9
0		Set this terminal open in general.	57		Shall be connected with SC (56). Effective when EXBF is low level. Pulse rise is detected.
49	VCFM	VTR color frame	58	EXSC	External subcarrier input
	T	Color frame for VTR exclusively. 2-field period for NTSC1, NTSC2 and PAL. 4-field period for PAL1, PAL2 and SECAM.			Effective when EXBF is low level. Pulse rise is detected.
50	CFMI	Color frame input	59	EOS	Digital phase comparison output for subcarrier
	Z.	Effective with EXTI being low level. Used for color frame control in external synchronization. Reset to synchronizing circuit by the slip system.			As compared with leading edge of EXSC; when internal SC has advanced phase: Low level, when internal SC has lagged phase: High level, when internal SC is in phase: High impedance.
51	CFMO	Color frame output			O TR 13
		Pulse output at the beginning of every color frame. 4-field period for NTSC1 and NTSC2. 8-field period for PAL1, PAL2, PALM and	60	GND	Ground
	T	O 9 SECAM.	61	VDD	+5V power supply
52	TSTA	Test terminal A			
		Set this terminal open in general.	62	FSCO	Oscillator output for subcarrier
		I PU	63	FSCI	Oscillator input for subcarrier
53	TST9	Test terminal 9		П	
			64	2FSC	Double subcarrier output
		Set this terminal open in general.		П	Half-divided oscillator output for subcarrier
		I PU	1	' ' '	O 13

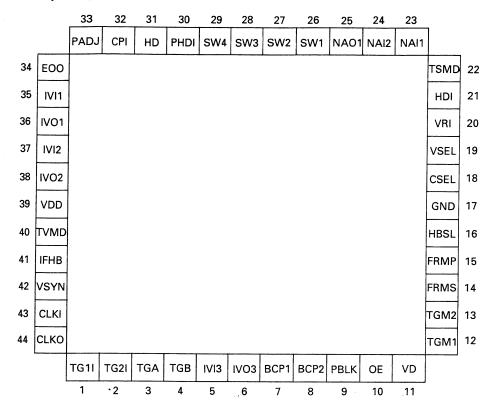
Pin No.	Pin Name			Fund	tion		Pin No.	Pin Name			Fu	nction			
65	4SC	1/4 subcarrie	r output				75	GND	Ground						
		1	/4-divide	ed outp	ut of su	bcarrier frequency									
	2	0 9					76	TR1	Random rese	t syster	n sett	ing inp	out		
66	2SC	1/2 subcarrie	r output							o deter em.	mine	reset	systen	n settin	g sys-
		1	/2-divide	d outp	ut of su	bcarrier frequency			L	: SYNC	reset	syster	m, H: S	YNC no	n-reset
	П	O 9							(F					ns of ra	andom
67	GND	Ground							s s	hutter s	etting	tunct	ion.)		
									I PD						
68	SC1	Subcarrier 1					77	SHCT	Shutter contr	•		tter co	ntrol sig	nal	
		P		change	d by SO	CP1 and SCP2.			S	hall be PD943	conn	ected	to SH	CT (19)	of TG
	п.		n PAL m 1.	ode, p	hase is	not changed every			, (F	Refer to	the			ns of r	andom
		0 9					70	CBMD	0 9 S	hutter s	etting	Tunct	ion.)		
69	SC2	Subcarrier 2	Subcarrie	r fregu	ency o	utput whose phase	78	CRMD	•		h col	or bar	signal	to SMI	PTE or
		is	s 90° ahe	ead of S	SC1.	CP1 and SCP2.			F	ULL. : Full Fi			Ef	fective on	ly with
	П	ir	n PAL mevery H.	node, p	ohase i	s inverted by 180°				I: SMPT				AR signal (vel.	oi iow
70	SCP1	0 9 e					79	M4BK	Color bar						
		٨	Note:		L d	. 001			signal		BAR	СВМД	ı	'	w
		S	SC2 is exp		·					NTSC1	Н	x	L		L
	_	I PD	SCP2	SCP1	SC1	SC2				NTSC2	L	H	Effectiv	e Effectiv	e (75%W) L
71	SCP1	Subcarrier	L	L	0°	90° ahead (270°)		Γ	o 9		н	X	+		
		select 2	L	Н	90°	90° ahead (0°)	80	P4BK	Color bar signal	PAL1 PAL2	L	H	Effectiv	e Effectiv	e (75%W) re (100W)
			Н		180°	90° ahead (90°)			J. S. S. L.			-			
		I PD	Н	Н	270°	90° ahead (180°)				PALM	H	X H	L Effectiv	e Effectiv	e (75%W)
72	SCHD	Subcarrier ho	orizontal	driver				П	 		L	L	L	Effectiv	re (100W)
						e originating from	81	a -	Color bar	SECAM	H	Х	L Effectiv	re Effectiv	L re (75%W)
		s	subcarrie	r frequ	ency.				signal		L	L	L	1	L
		O 13													
73	TR0	Random shu	itter cont	rol sys	tem se	tting input						Q	P4BK	M4BK	
						control system.		1	0 9	NTS	C1	L	L Effective	L Effective	
		l	L: 8-stag continuo	e defa ous c	ult consontrol	trol, H: Pulse width (Refer to the	82	w	Color bar signal	NTS	C2	L	L	L	
			specifica		of rand	om shutter setting			Signal	PAL	, _	L	L	L	
	_	<u></u>								PAL	1151	ffective L	Effective L	Effective	
74	SI	I PD Stroboscope	index o	utput			\parallel					L	L	L	
'-		·		•		able analysis to \$	83	ļ	o 9 Color bar	PAL	M E	ffective L	Effective L	Effective L	
		1	strobosc	opic la	mp em	this output is for itting time.	03		signal	-	+		L	L	
			for video	outpu	t time.	ration, this output is				SEC	AM E	ffective	Effective L	_	
			(Refer t			cations of random n.)						L		<u> </u>]
	1	0 9		,				1	0 9						
	1														

Pin No.	Pin Name			Fu	ınction				Pin No.	Pin Name							Fur	nction				
	R	Color bar							95	PGP	Pilo	ot g	gat	ер	ulse							
		signal			r			·1							nassa	s the	1F	H del	el of tway line	and the	e othe	r
				BAR	C3MD	В	G	R							does	not r	ass	s the	1H lir mpensa	ie, wit	n eacr	h
	7	0 9	NTSC1 NTSC2	H	X X	L	L	L Effective		Ц	0	9			cause	d by t	he d	delay	line.			
85	G	Color bar signal	PAL1	Н	×	LIIBULIVE	L	Linective	96	PTP1	Pilo	ot p	oul	se '								
			PAL2	L	x	Effective	1 -	Effective							nassa	s the	1⊢	- dela	el of tw y line	and the	e othe	r
		0 9	PALM	Н	X	L	L F#aathaa	L							does	not p	ass ler	s the to co	1H lir mpensa	ne, wit	h eact	h
86	В	0 9 Color bar	05044	L	X	Effective	Ellective	Effective		J	0	9			cause	ed by t	he d	delay	line.			
		signal	SECAM	H L	X	L Effective	-	Effective	97	PTP2	Pilo	ot p	oul	se 2	2							
				L	L.,	L									Used	to cor	itro	l vide	o level.			
	J	0 9								7	0	9										4
87	BAR	Color bar co	ontrol (O	N/OFF	:) 				98	2FH	Do	ub	le f	=H		т						\neg
			BAR	R, G	i, B, I,	Q, W, P		I4BK							NTSC	NTSC	2 1	PAL1	PAL2	PALM	SECAN	4
			H	-	Fixe	Effecti ed at Lo		<u> </u>			0	٦			31.468	31.46	8 3	31.25	31.25	31,468	31.25	<u>:</u>
88	TST2	Test termin	nal 2						99	FH4	1	4FH	┧									7
	1012	1000 10111111													Half-	divided	l ou	itput c	of LSW			
			Set this	termi	nal ope	en in ge	neral.				Equivalent to 25 Hz in PAL mode.											
		i PU								П	0 9								_			
89	TST1	Test termin	nal 1						100	BF	Bu	ırst	: fla	g	D		:	مه لمم:	insert	cubcar	rier int	to
			Set this	termi	inal op	en in ge	neral.								back	porch	of t	horizo	ntal syı	nc. sign	al.	
											0	9	_	Functions to switch chromaticity signal every line in SECAM mode.						.9		
90	VDD	+5V powei	r supply						101	СР	╁┵		pр	uls	e							7
															Sign	al to cl	amį	p refe	rence	voltage	of blac	ck
91	GND	Ground							1						level							
										L	0	9									****	
92	TST5	Test termi	nal 5	٠					102	BCP1	Bla	ack	c cl	am	p puls	e 1						
			Set this	s term	inal op	en in ge	eneral.								Fixe	s black	lev	el of	CCD o	utput si	gnal.	
										1	-	9	Τ	1								
93	TST6	Test termi	nal 6						103	BCP2	+		k cl	am	p puls	e 2						\dashv
			0-4-11	·_ +	ا = احمد		onerel								Fixe	s blaci	c le	vel of	CCD	output	signal	(at
			Set thi	s term	ninal op	oen in g	enerai.							_		у Н оц					-	
		I PU							1	T	+	9										_
94	TST7	Test termi	inal 7						104	OBCS	0	ptic	cal	bla		se sel						
			Set thi	s term	ninal op	en in ge	eneral.								BCF	1 and	BC	P2.	t posit	ion of I	norizon	ıtal
	_									-	-	T	T	7		rontwa ackwa						
		0 9							J L		11	PL	1	1_								

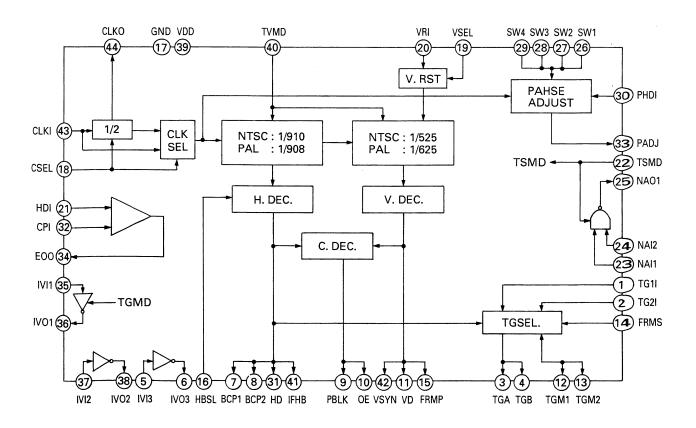
Pin	Pin	P	Pin	Pin	
No.	Name	Function	No.	Name	Function
105	GND	Ground	115	CSYN	Composite sync.
]		Composite synchronizing signal compris- ing of four signals of HSYN, VSYN, EQ
106	IFHB	Interface horizontal blanking			and SAW.
1		Output pulse that is narrower than HBLK		1	0 9
		both in leading edge and trailing edge.	116	VBLK	V. blanking
] J.	0 9			Vertical blanking signal whose pulse width
107	IFVS	Interface vertical synchronization]]		can be changed with VBW1 and VBW2.
		Normal function: To output vertical syn-		T	0 9
		chronization signal having the same pulse width of V. EQ pulse.	117	AHBL	Pre-horizontal blanking
		Random shutter setting function: To out-			Pulse that HBLK is advanced in breaking
		put the same signal as V. sync. signal in the fall time.			of leading edge.
	T	0 9		T	0 9
108	FI	Field index	118	HBLK	H. blanking
		Field discrimination signal.			Horizontal blanking pulse whose pulse
		L: Field that HD and VD fall at the same time.			width can be changed with HBW1 and HBW2.
		H: Field that there is a time lag of 0.5H in falling between HD and VD.		7	0 9
		0 9	119	HD	H. drive
109	VD	Vertical drive pulse			Pulse synchronized with beginning of
		Pulse output at the beginning of every field.			respective lines. Used as horizontal timing standard of the set.
	7 -	Used as the vertical timing standard for the set.		Ţ	0 13
ļ	工	0 9 1 118 381.	120	GND	Ground
110	DVD	Delayed vertical drive pulse			
		Vertical drive signal that lags behind VD			
		pulse. Controls camera's scanning timing and			
		regulates activation time of sawtooth waveform of vertical deflection circuit.	L		
	J	O 9			
111	CHD	Delayed horizontal drive pulse			
	טווט	Controls camera's scanning timing.			
		Regulates activation time of sawtooth waveform of horizontal deflection circuit.			
	Ţ	o 9			
112	GND	Ground			
113	PBLK	Pre-blanking			
		Composite blanking signal used for video			
		processing. As compared with CBLK signal, this signal			
	T	is narrower in the leading edge.			
114	CBLK	Composite blanking			
		Harizontal and vertical composite blanking			
		Horizontal and vertical composite blanking signal.			
	T	0 9			
L		" "			

■ JCS0028 [JVC] (H, V Timing Generator)

(Top View)



BLOCK DIAGRAM

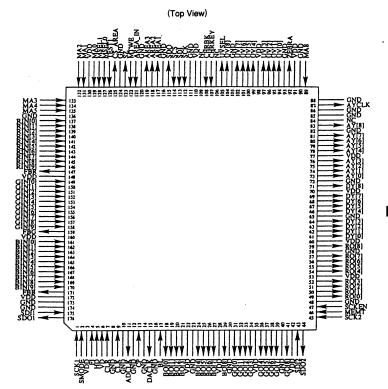


DIN 9	SPECIFIC	ATIONS	<u> </u>		T
FINS	or Lonio		No.	Symbol	
		Pin Name	12	TGM1	Read Out Mode 1 When both of TGM1 (12) and TGM2 (13) are used, it is possible to set the READ OUT MODE.
2	osco	Osillation output			I PD TGM2 TGM1 Read Out Mode Set
		0	13	TGM2	Read Out Mode 2 L L 4 pixels read-out (field)
		Type of buffer SH: Schmitt PU: Pull-up PD: Pull-down TR: Tri-state			L H 3 pixels read-out (frame) H L 2 pixels read-out (frame) H H 1 pixels read-out
		TH: Through rate Figure: Output current (mA)	14	FRMS	Frame Select A/B frame switching terminal for 1 pixel read-out.
		Input/Output Polarity			L: A frame (TG3B, TG3A, output only) H: B frame(TG1B, TG1A, output only)
No.	Symbol	Description	15	PRMP	Frame Pulse
1	TG1 I	Transfer Gate 1 Input Connect μPD9438AGK (11)			One cycle of 4 fields output pulse. When connecting to FRMS (14), A/B frame is capable of being selected automatically.
	T	I If not used, do not change the level.			O 9 Is capable of being selected automatically.
2	TG21	Transfer Gate 2 Input Connect μPD9438AGK (12) If not used, do not change the level.	16	HBSL	Interface Horizontal Blanking Select Position switching of IFHB (41). L: System delay 900 ns approx.
3	TGA	Transfer Gate A Output			I PU H: System delay 450 ns approx.
		Electric charge transfer pulse output from TG1 I (1) for øV1A and øV3A use.	17	GND	Grounding
4	TGB	Transfer Gate B Output	18	CSEL	Clock Select
	T	Electric charge transfer pulse output from TG2 I (2) for øV1B and øV3B use.			It is used to select the frequency input clock. L: 14.318 MHz (NTSC), 14.187 MHz (PAL), H: 28.636 MHz (NTSC), 28.37MHz (PAL)
5	IVI3	Common Invert Input 3 If not used, do not change the level.	19	 VSEL	VD/V SYNC Select
6	IVO3	Common Invert Output 3			It is used to select signals that are input to VRI (20).
		The invert output of IVI3 (5).			L: VSYNC signal input, H:VD signal input (PBLD ends before 3H).
7	BCP1	Black Clamp Pluse 1			I PD
	1	Fixing the black level of CCD output signal. O 9 But, outputting per H.	20	VRI	EXT. Vertical SYNC Input VSYNC/VD signals are selected according to VSEL (19).
8	BCP2	Black Clamp Pluse 2 Fixing the black level of CCD output signal.		7	Depending on the input, the other IC and vertical SYNC may be taken off
	丁	O 9 But, outputting per H.	21	HDI	EXT. Horizontal SYNC Input (Ref. input for digital
9	PBLK	Preblanking Used in process of picture treatment to blank the compound flying-back lines.	-	(RPI)	phase comparator) Depending on the input of HD signal, the horizontal SYNC may be taken off.
	T	O 9 This PBLK has a syape of narrow fore edge compared with CBLK.		٦	(To detect when the input signal goes off.)
10	OE	ODD-EVEN	22	TSMD	Test Mode Switching
		The signal to distinguish the ODD and EVEN. L: ODD field, H: EVEN field			Normally set to open. L: Normal operation H: Common NAND (23-25) and common
11	VD	Vertical Drive			I PO invert (35 and 36) become test terminals.
	"	The vertical REF. timing, which is included in the pulse set, output ahead of each field.	23	NAI1	Common NAND Input 1 If not used, fix the level.
	T	0 9			

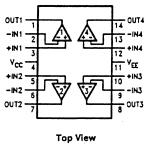
No.	Symbol			De	scripti	on			
24	NAI2	Comm		•					
			If no	ot used	, fix th	e level			
			7						
25	NAO1	Commo	n NAN	D Outr	out 1				
	10,101			NAND		ıts of N	NAI1 (2	20) and	d NAI2
			(21) ¬						
		BI 9							
26	SW1	Delay S		on 70	۰				
			1 50	ep = 70	ins ap	prox.			
		I PD		Step	SW4	SW3	SW2	SW1	Cont value
27	SW2	Delay S	Set 2	1	L	L	L	L	0
				2	L	L	L	Н	1
				4	L	L	H	L	3
			7	5	L	Н	L	L	4
		I PD		6	L	н	L	н	5
28	SW3	Delay S	Set 3	7	L	Н	Н	L	6
				8	L	Н	H	H	7
				10	Н	L	L	L	8 9
				11	Н	L	Н	L	10
		I PD]	12	Н	L	н	н	11
20	SW4		Sot 4	13	Н	Н	L	L	12
29	3004	Delay S	DEL 4	14	Н	Н	L	H	13
				15 16	H	H	Н	H	14 15
		, los	7		•••	''	''	_ ''	
		I PD	<u> </u>				·		
30	PHDI	Phase .			ubar "	ha Lim	in	4a==!	·"
				ietect v uit goes		ie HD	input	ior pha	ase adj.
				t used,		e level			
	٦.		7						
21	7		tol Driv						
31	HD	Horizor		e horizo	ntal tin	nina si	anal v	vhich i	s
			inclu	ıded in	the pu	ılse se	t, synd	chroniz	zed
				start o		line, a	ınd the	REF.	signal
	חר	O 13	used	7 IOI 9,	INC.				
32	CPI	Compa	ricos la	nut for	Diaita	Dhac	o Co	norst	
32	OPI	ROTTOL	กรบก เท				e com	•	
		Compa	Tor	•	_			al coe	5 UII.
		Обтра	Тос	letect v	_			al goe	S 011.
	٦	I SH	To 0	•	_			al goe	5 UII.
33	PADI	I SH		letect v	_			al goe	5 011.
33	PADJ		Adj. Ou	letect v	vhen tl	ne inpi	ut sign		
33	PADJ	I SH	Adj. Ou For the	tput outputt	vhen the	ne inpo BμS wi h is se	ut sign	layed W1~S	pulse W4
33	PADJ	I SH	Adj. Ou For the v	tput outputt value o	vhen the	ne inpo BμS wi h is se	ut sign	layed W1~S	pulse W4
33	PADJ	I SH Phase	Adj. Ou For the v	tput outputt	vhen the	ne inpo BμS wi h is se	ut sign	layed W1~S	pulse W4
	T	I SH Phase	Adj. Ou For the (26, gond	tput outputt value o 27, 28 e off.	ing 2.3 f which	ne inpo BμS wi h is se 9) afte	ut sign	layed W1~S	pulse W4
33	PADJ	I SH Phase	Adj. Ou For the (26, gond	tput outputt value o 27, 28 e off.	ing 2.3 f which and 2	ne inpo BμS wi h is se 9) afte	ut sign	layed W1~S	pulse W4
	T	I SH Phase	Adj. Ou For the (26, gond Phase (CPI'	tput outputt value o 27, 28 e off. Comparise relatione phase	ing 2.3 f which and 2 rison C on with	BµS wih is see 9) after Dutput h RPI:	dth de t by S' r PHD	layed W1~S' 1 (30)	pulse W4
	T	I SH Phase	Adj. Ou For the (26, gond Phase (CPI' Sam Lea	tput outputt value o 27, 28 e off.	ing 2.3 f which and 2 rison C on with se: High	BµS wih is se 9) afte Dutput h RPI: the impersor level of the level of	dth det by S'r PHD	layed W1~S' 1 (30)	pulse W4

	No.	Symbol	Description		
	35	IVI1	Common Invert Input 1		
			If not used, fix the level.		
	36	IVO1	Common Invert Output 1		
			Invert output of IVI1 (35).		
	37	IVI2	Common Invert Input 2		
	O,	1412	If not used, fix the level.		
-			1		
	38	IVO2	Common Invert Output 2 Invert output of IVI1 (37).		
			0 9		
Ī	39	VDD	+5V Power Supply		
Ī	40	TVMD	TV Mode Switching		
			Switching of NTSC and PAL L: NTSC mode, H: PAL mode		
			I PD		
	41	IFHB	Interface Horizontal Blanking The pulse output with narrow leading and		
			later edges compared with HCBLK.		
			The position of output changes depending on HBSL (16).		
			0 9		
	42	VSYN	Vertical SYNC. The vertical SYNC output in the period of		
			vertical EQ pulse.		
		T	0 9		
	43	CLKI	Clock Input 28 MHz, 14 MHz clock input can be		
			selected by CSEL (15).		
			1		
	44	CLKO	Clock Output		
			When 28 MHz is input to CLKI (43), half- divided frequency is output.		
			When 14 MHz is input to CLKI (43), 14 MHz is output.		
		Ш	0 9		

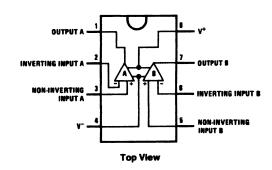
■ JCS0048 [JVC] (Digital Signal Processor)

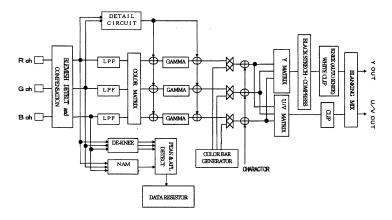






■ LMC6082IM-X [National Semiconductor] (Precision CMOS Dual Op.Amp.)





SECTION 5 EXPLODED VIEW AND ASSEMBLY LIST

• SAFETY PRECATION

Parts identified by the Δ symbol are critical for safety. Replace only with specified parts numbers.

NOTE

Parts not denoted by parts numbers are not supplied by JVC.

■ CAMERA HEAD ASSEMBLY PARTS LIST M 1

M	1 M	M		

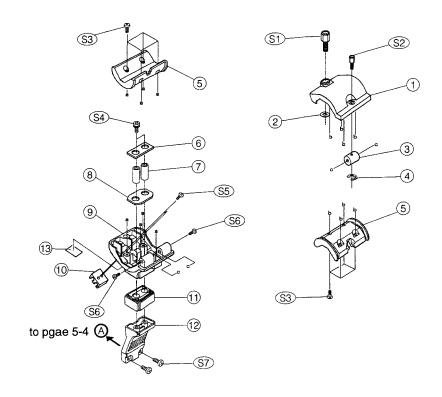
Symbol No.	Part No.	Part Name	Description
1	SC10221-001	FRONT FRAME	
3	SC44847-150 SC42550-011	SHIELD TUBE C HOLDER	
4	SC42550-011 SC45239-003	LENS CONNECTOR BRACKET	
5	SCV1938-12S	LENS CONNECTOR	
6	MLSC0691-001	WIRE ASSEMBLY	
7	SC31363-011	FILTER KNOB	
8 9	SC46312-001 SC20689-001	GEAR HOLDER DR BRACKET	
10	SC44828-011	KNOB	
11	SC43825-002	CAP	
12	SCV0238-06S	VF CONNECTOR	
13 14	MLSC0690-002 SCV2631-001	WIRE KIT FERRITE CORE	
15	SC32164-001	FILTER BASE	
16	SC44939-001	SPACER /	
17	SC44508-012	FILTER SHAFT	
18	QYWFM416525	PLASTIC WASHER F.I GEAR	
19	SC44505-001 SC46225-001	F.I SHAFT	
21	SC31365-001	FILTER WHEEL	
22	SC44651-001	FILTER	CLEAR, 3200K
23	SC44653-001	FILTER	BROWN, 1/4ND (E/EC)
24	SC44652-001 SC44652-001	FILTER FILTER	OREANGE, 5600K (U) OREANGE, 5600K (E/EC)
24	SC44653-031	FILTER	BROWN, 1/16 ND (U)
25	SC44653-031	FILTER	BROWN, 1/16 ND (E/EC)
	SC45117-001	FILTER	EFFECT (CROSS) (U)
26	SC45118-002	FILTER SHEET	
27 28	SC44649-001 Q03093-841	F.W.SHAFT PLASTIC WASHER	
29	SC44506-001	FILTER STOPPER	
30	SC44627-001	FILTER SPRING	
31	SC31364-004	FILTER COVER FILTER CAP ASSEMBLY	
32	SC44676-005 SC83183-004	FILTER BOARD	
34	QGA1501C1-05	CONNECTOR	
<u>∧</u> 35	SCM0986-P0A	OP BLOCK ASSEMBLY	(E/EC)
△ 35	SCM0986-N0A	OP BLOCK ASSEMBLY	(U)
<u> </u>	SCV2803-3009B	FFC WIRE	<isb dr="" isg="" isr="" to=""></isb>
35B	SC44704-002 SC31370-001	SCREW MOUNT RING	
35D	SC40779-001	MOUNT SCREW	
36	SC46375-001	OP BRACKET	
37	PU49485-4	WIRE CLAMP	
38 39	SC46372-340 SC46381-001	SHIELD TUBE MT CUSHION	
40	SC40301-001	CUSHION	
41	QQR0895-008	FPC CORE	
42	QQR0490-001	FILTER	
43 44		FILTER PAD	
44		CUSHION	
46	SC46420-001	PLATE	
S29		SCREW	M2.6 x 5
S31 S32	QYSDSP3006M QYSDSF2006M	SCREW SCREW	M3 x 6 M2 x 5
S32 S34		SCREW	M3 x 4
1	QYSPSPT2030M	SCREW	M2 × 3.0
S37		SCREW	M2 x 5.0
	SC43397-003	SCREW	M2 × 5.0
S39 S40	QYSPSPT2050M QYSPSPL3004Z	SCREW SCREW	M3 x 4
	QYSDSP2606M	SCREW	M2.6 x 6
	QYSDSP2605M	SCREW	M2.6 x 5.0

■ CABINET ASSEMBLY PARTS LIST M 2

M	2 M M	

Symbol No.	Part No.	Part Name	Description
1	SC10225-001	L.SIDE COVER	(E/EC)
	SC10225-002	L.SIDE COVER	(U)
2	SC20693-002	L.SIDE PANEL	
3	SC46410-500	GASKET	
4	SC46410-480	GASKET	
5	SC10226-002	CASSETE COVER	
6	SC32177-011	WINDOW	
7	SC46321-001	ABSORB SHEET	
8	SC46321-002	ABSORB SHEET	
9		CONNECTOR	MIC2
10	SC46246-001	MIC BRACKET	
11	PU54392-1	LABEL	(E/EC)
	SC43658-001	LABEL	(U)
12		SHOLDER PAD	
13	SC20709-001	BOTTOM COVER	
	SC46242-002	REAR BASE	
16	SC20691-001	FRONT BASE	
17	SC46243-001	BH CUSHION	
	SCV2580-001	BATT.BRACKET	(E)
19	SC45291-001	CAP	
20	PRD44896	STAY	
21	PRD44897	STAY	
22		HINGE	
	PU49485-4	WIRE CLAMP	
	SC45925-001	LABEL	(E/EC)
	SC32201-001	ABSORB SHEET(L)	
	SC32201-002	ABSORB SHEET(L)	
27		ABSORB SHEET(L)	
	SC32201-004	ABSORB SHEET(L)	
	SC32172-001	CUSHION RUBBER	
30		SHEET	
31	i .	SHIELD CUSHION	
32		SHEET	
33		LABEL	
34		SHIELD CUSHION	(U)
35		UL LABEL	(E/EC)
37		CLAMP CORE	(6/60)
38	I .	6P PLATE RECEPTACLE (6S)	TO SETUP-BOX
39			M3 x 8 (U/EC)
	QYSDSP3008M	SCREW	IVIS X 8 (0/EC)
	SC43397-009	SCREW	M2.6 x 5
	QYSDSP2605Z	SCREW SCREW	M3 x 6
S31	1	SCREW	M3 x 6
S31	QYSPSPD3006M	SCREW	M3 x 6
	QYSSSP4008N	SCREW	M4 x 8
		SCREW	M2.6 x 5.0
S53	QYSPSPT2640N	SCREW	M2.6 × 4.0
S50 S57		SCREW	M2.6 x 6
35/	Q I SE SE ZOUDIVI	JOILLAN	1412.0 // 0

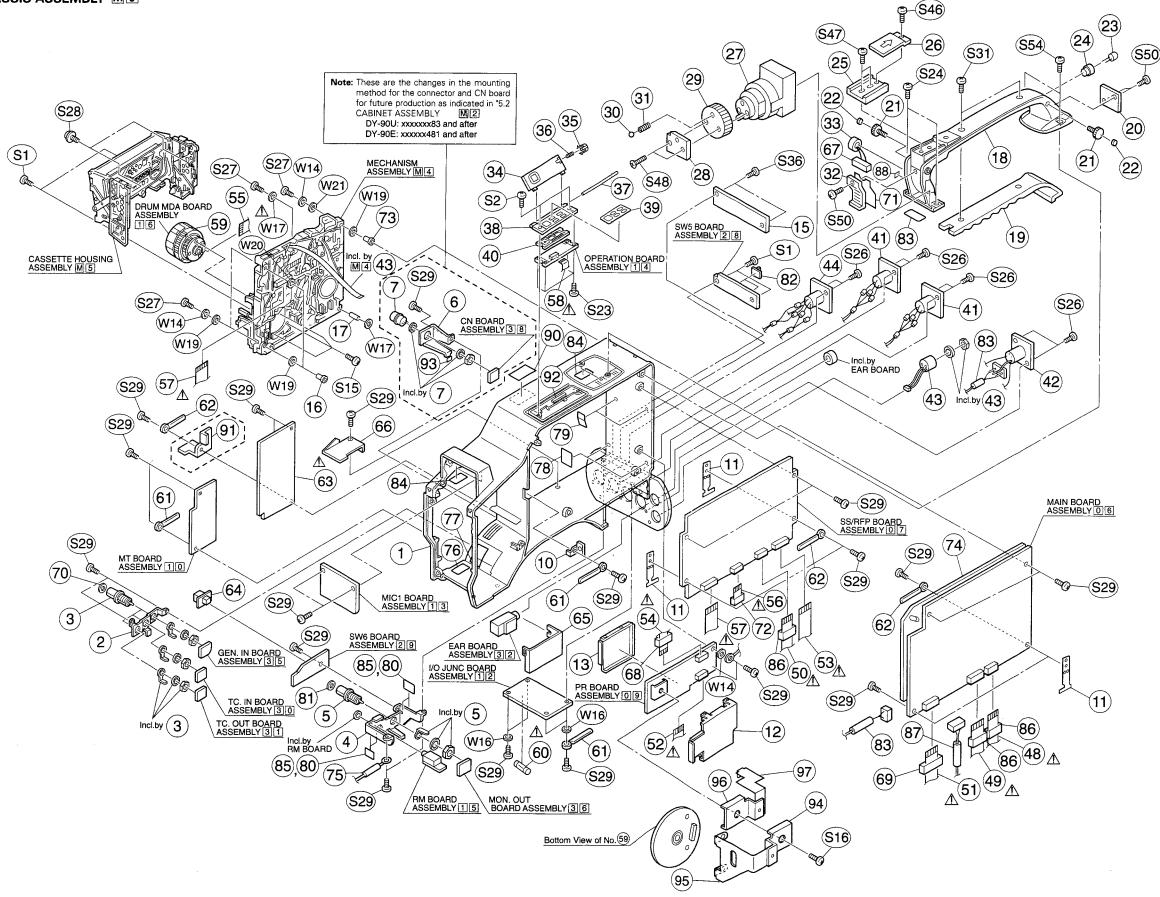
■ MIC HOLDER ASSEMBLY M9 (For DY-90EC/EC(K))

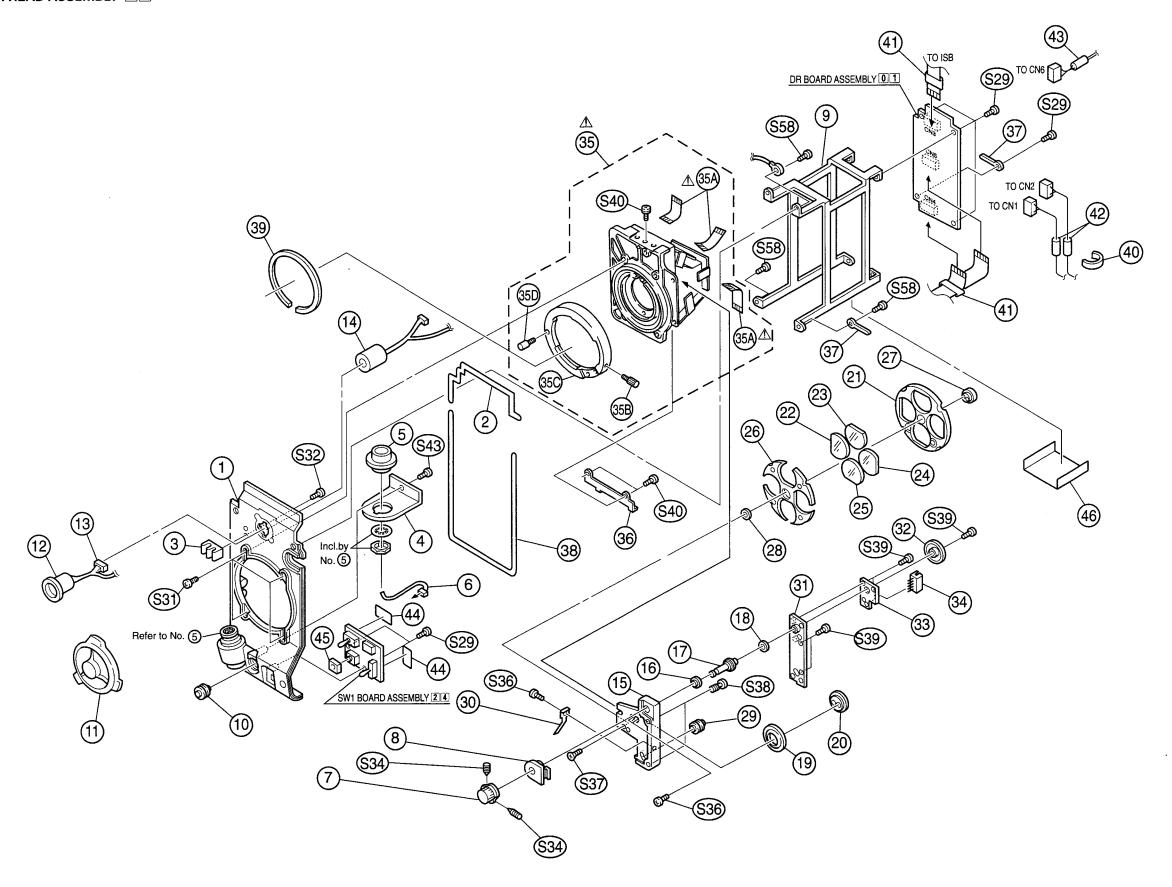


■ MIC HOLDER ASSEMBLY PART LIST M 9 (Only for DY-90EC)

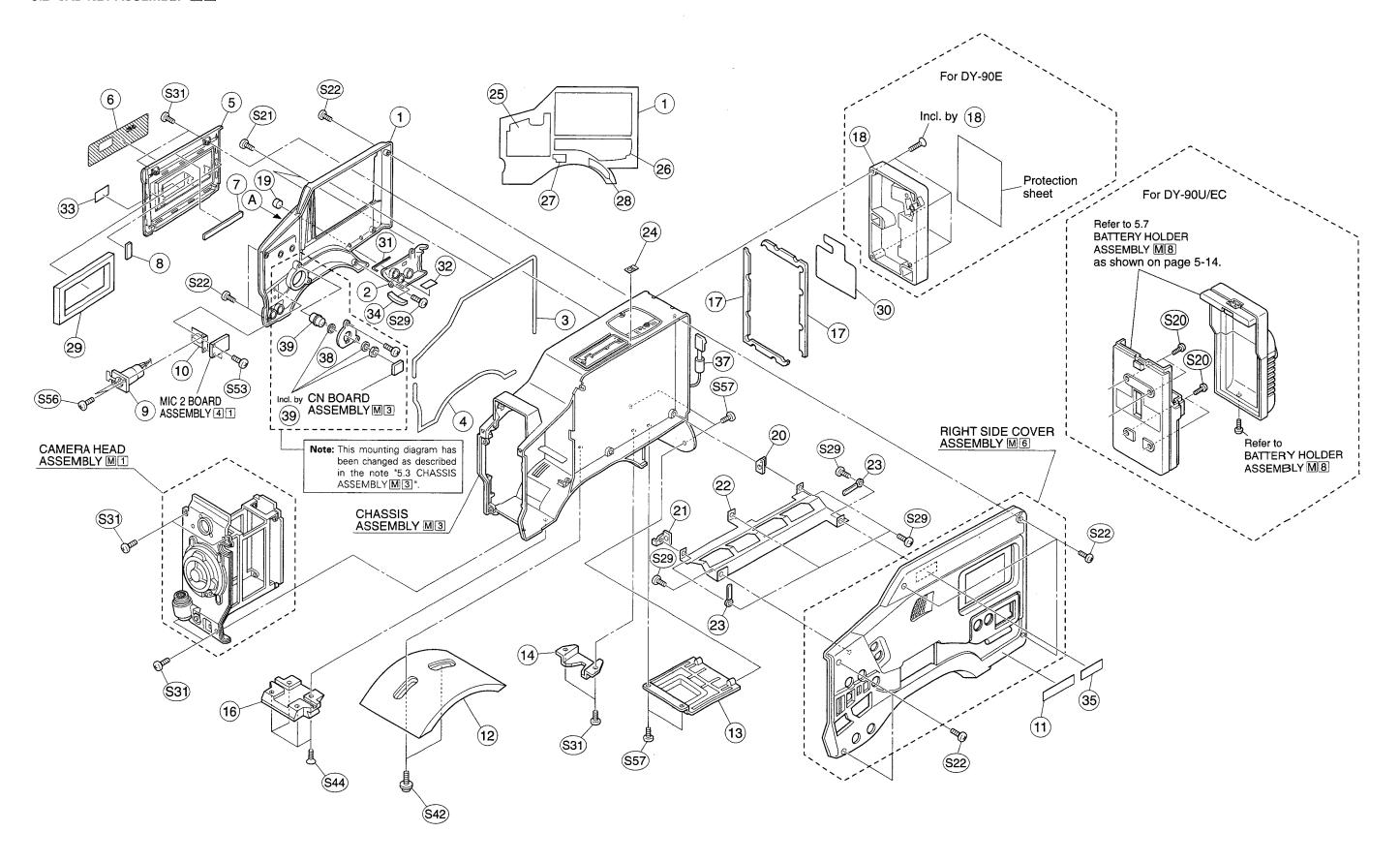
D.A	9 1	A MA		\Box	

Symbol No.	Part No.	Part Name	Description
1	SC20699-001	UPPER HOLDER	
2	SC45316-031	O RING	,
3	SC46326-001	PIN	
4	QYREE2000	E.WASHER	
5	SC32205-001	MIC RUBBER	
6	SC46330-001	CAP PLATE	
7	SC46329-001	PIPE	
8	SC46331-001	CAP RUBBER	
9	SC20698-001	LOWER HOLDER	
10	SC42550-011	C HOLDER	
11	SC32206-001	HOLDER RUBBER	
12	SC20697-001	HOLDER BASE	·
13	SC46224-021	N.PLATE/KAA90U	
S1	SC46327-001	SCREW(1)	
S2	SC46328-001	SCREW(2)	
S3	QYSDSP2006M	SCREW	M2 × 6
S4	QYSPSPL3025Z	SCREW	M3 x 25
S5	l .	SCREW	M2 x 5
S6	QYSPSP2606M	SCREW	M2.6 × 6
S7	SC43390-002	SCREW	
W19	QYWSS256505N	WASHER	





5.2 CABINET ASSEMBLY M2

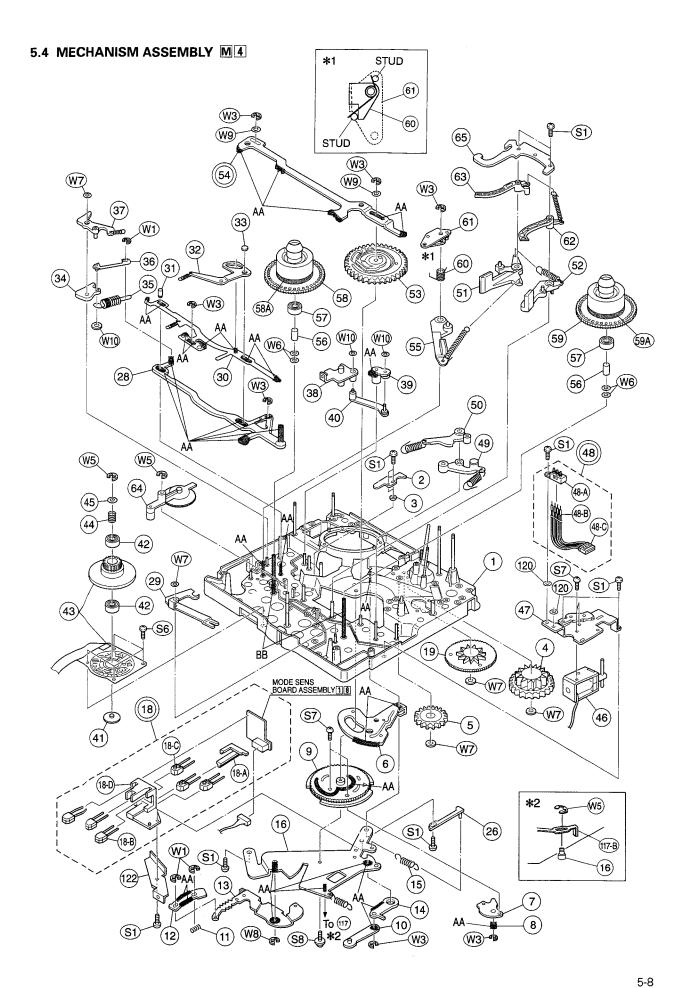


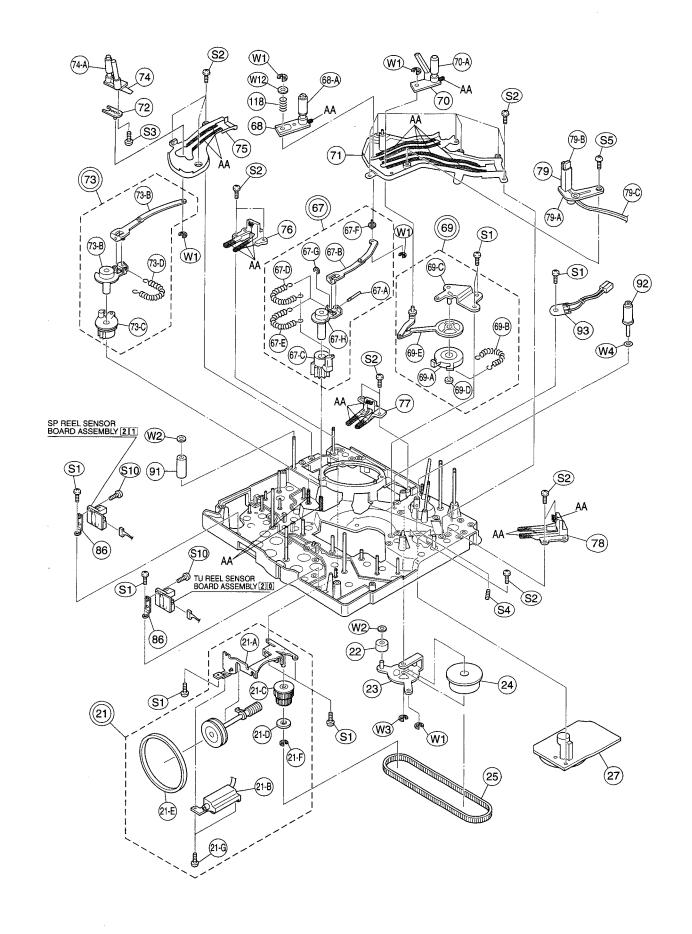
■ CHASSIS ASSEMBLY PARTS LIST M3

B.A	2	M	RЛ				\Box	
IIVI	10	IAI	I V I	I I	1 1	1 1	1 1	

No.	ol	Part No.	Part Name	Description			
	1	SC10220-002	CENTER FRAME	(E/EC)			
	۱ ا	SC10220-011	CENTER FRAME	(U)			
	2	SC46240-001	BNC BRACKET				
		QNZ0187-001	BNC CONNECTOR	TC IN/OUT,GEN			
	- 1	SC32173-004	CN BRACKET				
	$\overline{}$	QNZ0187-001	BNC CONNECTOR	MONITOR OUT			
	- 1	SC46245-002	6P BRACKET	Motivi Co.			
		QNZ0260-001	RECEPTACLE(6S)	TO SETUP-BOX			
		PRD44897	STAY	1002707			
	- 1	PRD44893	HOLDER				
	$\overline{}$	SC32175-001	P/R SHIELD(A)				
		SC32176-001	P/R SHIELD(B)				
		SC46239-002	REAR N.PLATE				
	- 1	SC46324-002	COLLAR				
	- 1	PRD45133	COLLAR(2) ASSEMBLY				
		SC10228-001	HANDLE				
		SC20692-001	HANDLE COVER				
		SC46244-001	CN COVER				
		SC46310-001	PIN				
	- 1	SC46311-001	SPACER				
		SLR-56VR5F	L.E.D.				
	- 1	SM3512	L.E.D.MOUNT				
	,	SC40886-001	SHOU	·			
		C40936	SPRING				
		SC32163-002	VF BASE				
		SC46227-002	SLIDE PLATE				
		SC45127-002	VF RING				
		SC40465-045	STEEL BALL				
		SC46371-001	SPRING				
		SC46235-002	ADJUST PLATE				
		SCV0238-06S	CONNECTOR				
		PRD31229-01-03	DOOR				
	- 1	PRD43840-01-04	KNOB(DOOR)				
		PRD30023-53	COMP.SPRING 53				
		PRD43829-03	SHAFT				
		PRD31228-01-04	HOLDER(OPE)				
		PRD44890-01-01	PLATE:				
		PRD31233	KNOB(OPE)				
	- 1	QNZ0207-001	RECEPTACLE(3S)	AUD1/AUD2 IN			
		QNZ0249-001	DC IN CONN(4P)				
	-	QNZ0257-001	DC OUT CONN(4S)				
		QNZ0220-001	RECEPTACLE(5P)				
		SCV2631-001	FERRITE CORE				
		PGW0206-140140	FFC WIRE	<alcd main="" to=""> CN44</alcd>			
		PGW0206-140180	FFC WIRE	<alcd main="" to=""> CN43</alcd>			
		PGW0206-200120	FFC WIRE	<alcd ss="" to=""> CN55</alcd>			
		PGW0206-140240	FFC WIRE	<cp main="" to=""> CN32</cp>			
		SCV2803-2806B	FFC WIRE	<main pr="" to=""> CN56</main>			
	ľ	SCV2803-4011B	FFC WIRE	<main ss="" to=""> CN46</main>			
	- 1	SCV2803-1404B	FFC WIRE	<pr ss="" to=""> CN54</pr>			
		SCV2803-1804B	FFC WIRE	<pr l.drum="" to=""></pr>			
		SCV2337-1017BD	FFC WIRE	<ss d.mda="" to="">CN53</ss>			
		SCV2803-4011B	FFC WIRE	<ss mif="" to="">CN47</ss>			
		PGW0206-070080	FFC WIRE	<ope mif="" to=""></ope>			
		PDR2030A	DRUM FINAL ASSEMBLY				
	_	QMF51A2-4R0-S	FUSE	4A,AC250V(E/EC)			
		QMF51U1-4R0-S	FUSE	4A,AC125V (U)			
		PU49485-4	WIRE CLAMP	,,			
	611						
		PU49485-3	WIRE CLAMP				

Symbol No.	Part No.	Part Name	Description
63A	SCV2908-001	CONNECTOR	
64	SC44556-011	TC.KNOB	
65	SC46333-001	SHEET	
66	SC46332-001	WIRE CLAMP	
67	MLSC0692-001	WIRE KIT	
68		FERRITE CORE	
69	QQR0895-011	FPC CORE	
		BNC CUSHION	
71	SC46237-001	SHEET	
1	QQR0947-001	FERRITE CORE	
	SC46324-001	COLLAR	
	SC32229-001	SHIELD PLATE	
		SHIELD PLATE FERRITE BEADS	
	PGZ02359		
i i		SHEET	
77	SC46419-002	SHEET	
	SC46074-004	BKT SHEET	
1		SHEET	
80	SC45548-002	SHEET	
81	SC46380-002	BNC CUSHION	
82	SC44556-002	KNOB	
83	QQR0490-001	FILTER	
84	SC46074-004	BKT SHEET	
85	QQR0988-002	FERITE CORE	
86	QQR0895-008	FPC CORE	
	SCV2728-001	CLAMP FILTER	
<u> </u>		LABEL	(U)
89	QQR0765-001	FERRITE CORE	(0)
91	SC46417-001	BRACKET	
- i		SHEET	
		SHEET	
 		SHIELD BRACKET (3)	
94			
1		SHIELD PLATE (1)	
1 1	SC46441-001	SHIELD BRACKET (2)	
97	SC46439-001	SHIELD PLATE (2)	NAO 4
S1	QYSDSP2004Z	SCREW	M2 x 4
S2	QYSDSP2006M	SCREW	M2 x 6
S15		SCREW	M2.6 x 6
S16		SCREW	M3 × 4
S23	QYSDSF2004Z	SCREW	M2 x 4
S24	QYSDSP4006M	SCREW	M4 x 6
S26	QYSPSP2606N	SCREW	M2.6 x 6
		SCREW	M2.6 x 12
S28		SCREW	M2 x 5
		SCREW	M2.6 x 5
		SCREW	M3 x 6
	QYSPSPT2030M	SCREW	M2 x 3.0
	SC44821-001	SCREW	
S47	QYSSSP3006N	SCREW	M3 × 6
S48		SCREW	M4 x 45
		SCREW	M2 × 4
			M4 x 10
S54		SCREW	IVI4 X TU
W14		WASHER	
1 5		T.LOCK WASHER	CV
l W17 i	PRINCHION NO	l Washer	1
I I		1	
W19	SC46325-001	ABSORB SPACER	
W19	SC46325-001 SC46325-002	1	





*****3 To 16 ***2** W3) MIF BOARD ASSEMBLY[15] NOTE: The section marked in AA and BB indicate lubrication and greasing areas. When checking or repairing this mechanism, make sure that the specified oil or grease has been applied to every point marked with AA, BB. Category JVC part number MARK MOS2-C AA Grease COSMO-HV56 ВВ

■ MECHANISM ASSEMBLY PARTS LIST M 4

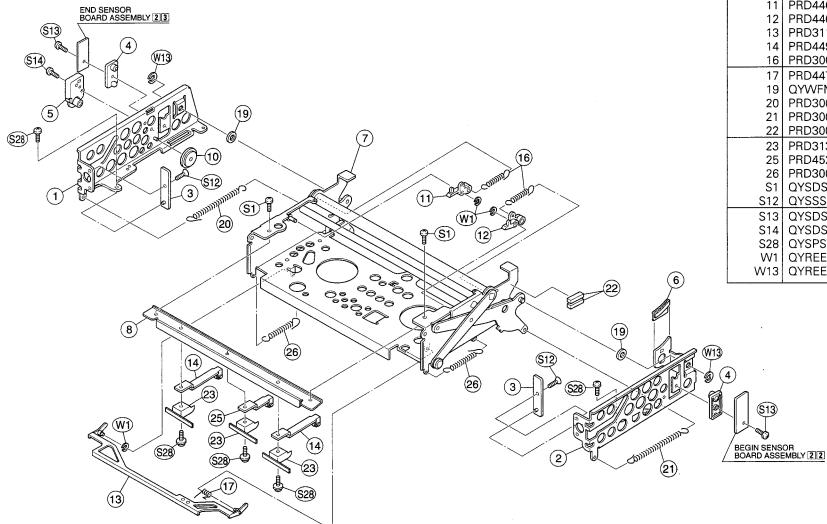
	ANISM ASSEMBLY		M4MM			
Symbol No.	Part No.	Part Name	Description			
	PGS30280B	MECHANISM ASSEMBLY				
1	PRD10339A-07	MAIN DECK ASSEMBLY ADJUST PLATE				
2 3	PRD44995 PRD44141	SPACER				
4	PRD44573	P.I.GEAR				
5	PRD44574	C.I.GEAR				
6	PRD44578A	ARM GEAR(R) ASSEMBLY				
7	PRD44862A	PIN PLATE ASSEMBLY				
8	PRD44865	ROLLER COTROL CAM				
9	PRD20538-01-02 PRD44713A	ROD				
10 11		COMP.SPRING 56				
12	PRD31117-01-03	SLIDE GEAR				
13	PRD44582A-04	A.GEAR(L) ASSEMBLY				
14		P.C.ARM ASSEMBLY				
15		TENSION SPRING				
16 18	PRD44958A PGS30258A	CAM BRACKET ASSEMBLY M.SENSOR ASSEMBLY				
18A		MODE SENSOR(2)				
18B		L.E.D.				
18C	TPS622	TRANSISTOR				
18D	PRD20539	MODE SENSOR(1)				
19	PRD44572	CONNECT GEAR				
20 21	PU49485-3 PGZ02533-02	WIRE CLAMP L.MOTOR ASSEMBLY				
21A		GEAR BKT.ASSEMBLY				
21B	JV-1850	LOADING MOTOR				
21C		WORM WHEEL				
21D		SPACER				
21E		BELT				
21F	QYREE2000 QYSPSPL2003Z	E.WASHER SCREW	M2 x 3			
21G		SCREW	M2 x 3			
22		BAND ROLLER				
23		B.R.ARM ASSEMBLY				
24		TIMING GEAR				
25	PGZ02193	TIMING BELT ADJ.LEVER ASSEMBLY				
26 27	PRD44839A PGZ02191	CAPSTAN MOTOR				
	PRD44597A-01	S.PLATE ASSEMBLY				
29		SOLENOID LEVER				
30	PRD44955A-01	BRAKE PLATE ASSEMBLY				
31	PRD44832	COLLAR 1	•			
32 33		BRAKE ANGLE ASSEMBLY COLLAR 2				
<u></u>	T	S.ADD LEVER				
	PRD44847-01-01	TENSION SPRING				
	PRD44815A-01	T.ROD ASSEMBLY				
37		S.B.LEVER ASSEMBLY				
	PRD44618A-01	SUB ARM SUB ASSEMBLY				
	PRD31128 PRD44627A	GENEVA GEAR PUSH ARM ASSEMBLY				
	PRD44764	COLLAR				
	PRD30021-14	BALL BEARING				
	PGZ02192	REEL MOTOR				
44	1 1.115.52.52.55	COMP.SPRING 57				
45 46		PLASTIC WASHER SOLENOID ASSEMBLY				
40 47		SOLENOID RACKET				
48	1 :	W SENSOR ASSEMBLY				
48A		W SENSOR				
48B	OXTE154-010	TUBE				
48C		CAS.SW WIRE				
49 50	PRD44959A-02 PRD44953A	T.S.L.SP.ASSEMBLY T.B.LEVER ASSEMBLY				
50 51	<u> </u>	L.C.L.F ASSEMBLY				
52		R.C.L.F ASSEMBLY				
53	PRD20540	2ND CAM				
54	PRD44614A-01 PRD44835A-02	DIR.PLATE ASSEMBLY SUB BREKE ASSEMBLY				
ממ	I FOUGANASA-UZ	LAUD DDENE AAAEIVIDEI	1			

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Symbol No.	Part No.	Part Name	Description
56		COLLAR	
57 58	PRD30021-13 PRD44518A	BALL BEARING REEL DISK ASSEMBLY	SUPPLY
58A 59	PRD44711 PRD44518B	RUBBER TIRE REEL DISK ASSEMBLY	TAKE UP
59A	PRD44711	RUBBER TIRE	TARE OF
60 61	PRD44834 PRD44635A	TORSION SPRING BAND HOLDER BKT	
62	PRD44954A-01	T.B.A.SP.ASSEMBLY	
63 64	PRD31131A-02 PGS30248A	S.B.ARM ASSEMBLY IDLER ASSEMBLY	
65	PRD31133-01-01	ARM GUIDE	
67 67A	PGS30251A PRD44537	L.ARM(R) ASSEMBLY L.ARM SHAFT	
67B	PRD44545A	ARM(R) ASSEMBLY	
67C 67D	PRD31109 PRD44542-02	L.GEAR(R) TENSION SPRING	
67E 67F	PRD44542-03 PRD44550	TENSION SPRING STUD	
	QYREE1200	WASHER	
67H 68	PRD44543A PRD31173C	L.ARM(R1) ASSEMBLY P.BASE(T) ASSEMBLY	
68A	PRD45090A-01	G.ROLLER ASSEMBLY	
	PGS30252A PRD44558	ARM(D) ASSEMBLY GEAR	
69B	PRD30024-74	TENSION SPRING	
69D	PRD44471A-01 PQM30017-5	ARM(D) BRACKET WASHER	
l	PRD44551A	ARM(D1) ASSEMBLY	
	PRD31174A PRD44950A	P.BASE(D) ASSEMBLY G.ROLLER ASSEMBLY	
71 72	PRD10342-01-03 PRD44477A	GUIDE RAIL(T)	
73	PGS30250A-01	BASE ASSEMBLY L.ARM(L) ASSEMBLY	
	PRD45128A PRD31108A	L.ARM(L) ASSEMBLY LOADING GEAR(L)	
73D	PRD44542	TENSION SPRING	
	PRD31172B-04 PRD45090A-01	P.BASE(S) ASSEMBLY G.ROLLER ASSEMBLY	
75	PRD10341-01-03	GUIDE RAIL(S)	
	PRD31093 PRD31094	CATCHER(S) CATCHER(T)	
	PRD31095 PGS30245A	CATCHER(D) CASS.LED.ASSEMBLY	·
79A	PRD31104	LED HOLDER	
	LN59 MLSL045A	L.E.D. CASS.LED WIRE	
80	PRD30024-83	TENSION SPRING	
	PRD45022A-01 PRD44722A-02	S.T.ARM ASSEMBLY TENSION BAND(S)	
	PRD30023-59 PGS30257A	COMP.SPRING 59 T.T.ARM ASSEMBLY	
84A	PRD43631A	GUIDE ROLLER	
	PRD44952A-01 QYYASPF2605F	T.T.ARM ASSEMBLY SCREW	M2.6 x 5
84D	PRD44726A-01	TENSION BAND(T)	
	PQM30017 PRD44521	SLIT WASHER SENSOR BRACKET	
91	PRD44505 PRD44403B	GUIDE ROLLER GUIDE ROLLER	
93	QSD0002-001	DEW SENSOR	
	PRD44600 PRD44603A-01	JOINT ARM PINCH ROD ASSEMBLY	
96	PRD20537	CAM GEAR	
	QYWFM315450 PRD31221-01-01	PLASTIC WASHER PLOCK LEVER	
99	PGS30255A-01	P.ROLLER ASSEMBLY	
99B	PRD45001 PRD31148	TORSION SPRING ARM LIFTER	
99C	PRD45000	TORSION SPRING	

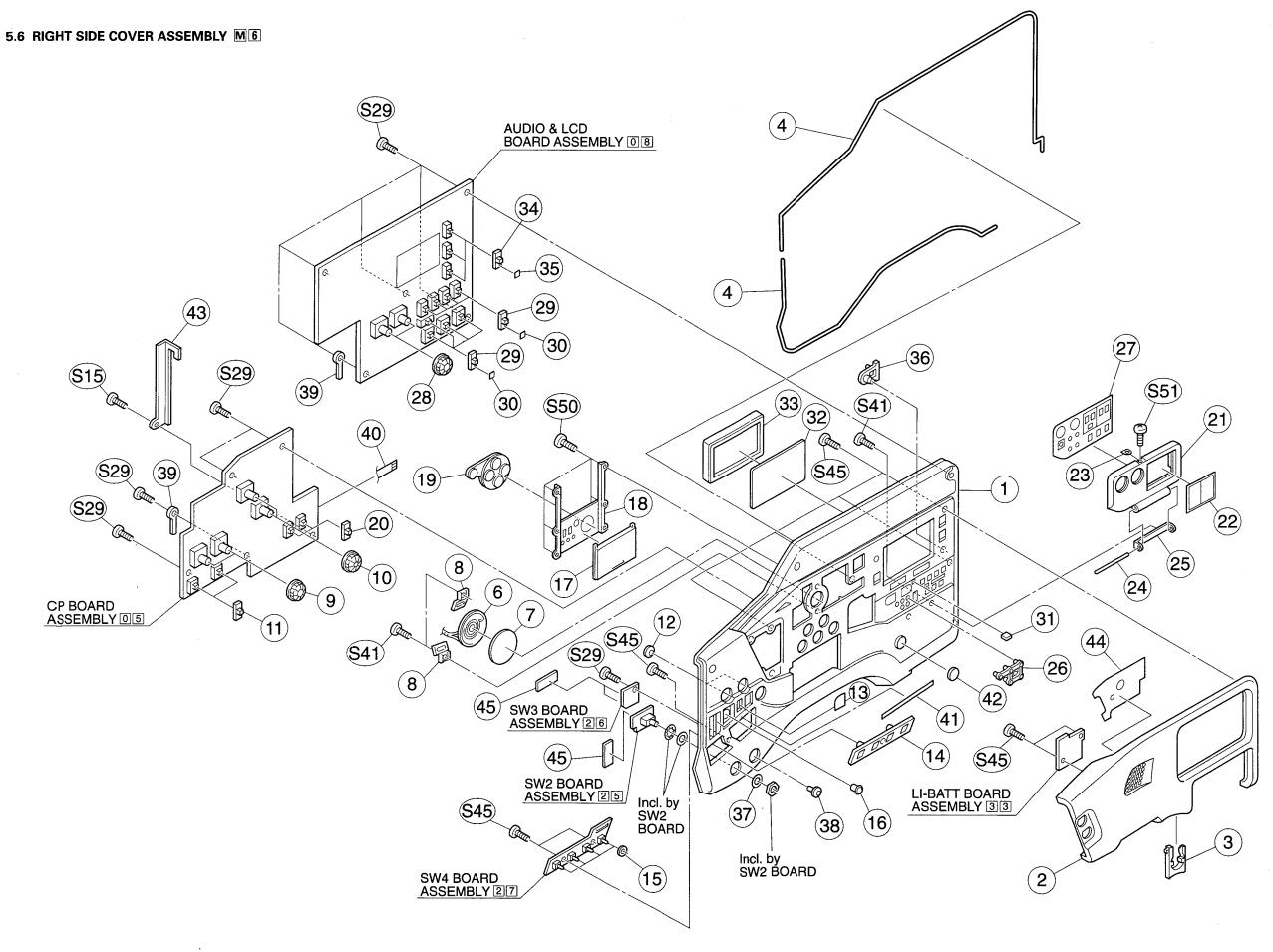
Symbol No.	Part No.	Part Name	Description
99D 99E 99F 99G 99H	PRD44991A	SENSOR PLATE E WASHER SCREW PINCH ROLLER PINCH ARM ASSEMBLY	M2 x 4
99J 100 101 102	PQ43566 PRD44729 PRD44501-01-01 PGS30247A	P.ROLLER CAP PLATE TORSION SPRING A/C HEAD ASSEMBLY	
102A 102B 102C 102D 102E	PRD31101 PGZ02190-01-02 PRD44502A-02 PQM30002-197 QYSDSP2612Z	A/C HEAD ARM A/C HEAD HEAD BASE ASSEMBLY COMP.SPRING 197 SCREW	M2.6 x 12
102F 102G 102H 103	PQ43687B PQ44621 QYSDSP2604Z PRD30026-38	SCREW SCREW SCREW COLLAR	M2.6 x 8 M2.6 x 4
106 108 109	PRD44241 PRD31156 PRD44926A PRD44498-01-01 PRD44505	TAPER NUT SENSOR BRACKET G.ROLLER ASSEMBLY TORSION SPRING GUIDE ROLLER	
111 112 113	PRD44399A PRD31099A-03 PRD44790-01-01 PRD45102A	FE HEAD ASSEMBLY FE HEAD ARM TORSION SPRING H.C.ARM ASSEMBLY	
115 116 117 117A	PQ46418-1-2 PRD45003 PGS30254A PRD44590	CLEANER ROLLER CLEANER 1 LOCK UNIT ASSEMBLY ROLLER	
117C 117D 117E	PRD44586-01-01 PRD44591A-02 PRD44594A QSW0097-001 MLSL044A-01	EJECT ROD LOCK LEVER ASSEMBLY LOCK BKT.ASSEMBLY INSERT SWITCH CAS.LOCK WIRE	
117G 117H 117J 118	PRD45005A PQM30017-25 QYSDSP2006M PRD30023-42	NOSE.F.ASSEMBLY SLIT WASHER SCREW COMP.SPRING 42	M2 x 6
121 122 N1	PRD44141 PRD45017 SC46440-001 PQ40353 QYSDSP2004Z	SPACER CLEANER 2 SHIELD BRACKET (1) NUT SCREW	M2 v 4
S2 S3 S4 S5	QYSDSP2006M QYSPSPU1740M QYYASPF2603F QYSBSF2606Z QYSPSP2004Z	SCREW SCREW SCREW SCREW SCREW SCREW	M2 x 4 M2 x 6 M1.7 x 40 M2.6 x 3 M2.6 x 6 M2 x 4
S8 S9 S10	QYSPSPL2003Z QYSPSPD2006Z SBSF2610Z QYSPSPL3006Z PRD45104	SCREW SCREW SCREW SCREW SCREW	M2 x 3 M2 x 6 M6 x 10 M3 x 6
W2 W3 W4 W5	QYREE1500 PQM30017-25 QYREE2000 PRD43925 QYREE2500	E.WASHER SLIT WASHER E.WASHER RING E WASHER	
W7 W8 W9	PQM30018-33 PQM30017-22 QYREE4000 QYWFM264725 PQM30017	WASHER WASHER E WASHER PLASTIC WASHER SLIT WASHER	
	QYWFM214013	PLASTIC WASHER	

5.5 CASSETTE HOUSING ASSEMBLY M 5



CASSI	ETTE HOUSING AS	SSEMBLY PARTS LIST M 5	M5MM
Symbol No.	Part No. Part Name		Description
	PGS30329B-01	C.HOUSING ASSEMBLY	
1	PRD44690A	BRACKET(L) ASSEMBLY	
2	PRD44695A-02	BRACKET(R) ASSEMBLY	
3	PRD44694-01-01	CASSETTE GUIDE	
4	PRD44704	SENSOR BRACKET	
5	PU56781	DAMPER	
6	PQ42384-1-3	LID GUIDE	
7	PRD31135A-03	C.HOUSING ASSEMBLY	
8	PRD31274-01-02	TOP PLATE	
10	PRD44696	DAMPER GEAR	
11	PRD44697	HOLD LEVER(L)	
12	PRD44698	HOLD LEVER(R)	
13	PRD31139A	L.LEVER ASSEMBLY	
14	PRD44986A	SPRING PLATE	
16	PRD30024-70-12	TENSION SPRING	
17	PRD44702	TORSION SPRING	
19	QYWFM416550	PLASTIC WASHER	
20	PRD30024-72	TENSION SPRING	
21	PRD30024-95	TENSION SPRING	
22	PRD30030-162	PAD	
23	PRD31343	C.GUIDE 2	
25	PRD45217A	S.PLATE 2 ASSEMBLY	
26		TENSION SPRING	
S1	QYSDSP2004Z	SCREW	M2 x 4
S12	QYSSSP2004M	SCREW	M2 x 4
\$13	QYSDSP2008Z	SCREW	M2 x 8
S14		SCREW	M2 x 6
	QYSPSPD2005Z	SCREW	M2 x 5
W1	QYREE1500	E.RING	
W13	QYREE3000	E.RING	

5-11

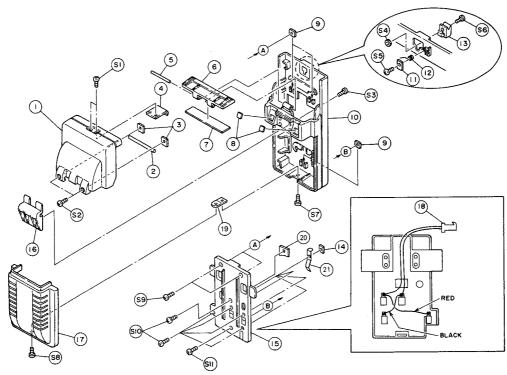


■ RIGHT SIDE COVER ASSEMBLY PARTS LIST M 6

		= =		r			\Box
IM.	6	IVI	IVI	1 8	1 1	f I	1 1

Symbol No.	Part No.	Part Name	Description
1	SC10223-001	R.SIDE COVER	(E/EC)
	SC10223-002	R. SIDE COVER	(U)
2		CHEEK PAD	
3		BATTERY HOLDER	
4	SC46410-500	GASKET	
6	SCV2903-001	SPEAKER	
7		SHEET	
8		SP BRACKET	
9	PRD44876-01-02	VR KNOB(2)	
10	SC46226-001	VR KNOB	
11	SC44556-002	KNOB	
12	SC45246-001	KNOB	
13	SC46399-001	LABEL	
14	SC31491-004	SW.NAME PLATE	
15	SC45264-001	RUBBER	
16	SC43451-001	LED LENS	
17	SC32166-001	SLIDE COVER	
18	SC32167-001	OPERATION PLATE	(E/EC)
	SC32167-002	OPERATION PLATE	(U)
19	SC32168-001	OPERATION CAP	
20	SC43403-001	KNOB	
21	SC20690-002	PANEL COVER	(E/EC)
	SC20690-003	PANEL COVER	(U)
22	SC46229-001	PANEL WINDOW	
23	SC46230-002	PANEL PLATÉ	
24	SC46231-001	PANEL SHAFT	
25		SHAFT HOLDER	
26	1	PANEL KNOB	
27		AUDIO PANEL	(E/EC)
	SC32170-003	AUDIO PANEL	(U)
28		VOLUME KNOB	
29		KNOB(OPE)	
30	1	KNOB PLATE	
31		MAGNET	
32		PLATE(LCD)	
33		LCD CUSHION	
34		KNOB	
35		KNOB PLATE	
36		SELECT KNOB	
37		WASHER	
	SC44828-002	SWITCH CAP	
	PU49485-4 PGW0206-040100	WIRE CLAMP	<alcd cp="" to=""></alcd>
<u>/</u> 40 41		FFC WIRE NAME PLATE	<alcoling cr=""></alcoling>
	SC46357-001	CUSHION	
	SC46334-001	CP BRACKET	
43	1	ABSORB SHEET(R)	
	PRD30030-162	PAD	
S15		SCREW	M2.6 x 6
	QYSDSP2605Z	SCREW	M2.6 x 5
S41		SCREW	M2.6 x 4
	QYSDSF2606Z	SCREW	M2.6 x 6
	QYSDSP2004M	SCREW	M2 x 4
S51		SCREW	M2 x 2.5

5.7 BATTERY HOLDER ASSEMBLY M8 (For DY-90U/EC/EC(K))



■ BATTERY HOLDER ASSEMBLY PART LIST M 9 (For DY-90U/EC/EC(K))

Symbol No.	Part No.	Part Name		Description
1	SC20476-011	B.H.COVER(1)		
2	SC45154-001	SHAFT		
3	PRD30955-02	PLATE		
4	PRD30955-05	ADJUST PLATE		
5	SC44805-001	SHAFT		
6	SC31319-011	GUIDE		
7	SC44869-006	CUSHION		
8	SC45155-001	CUSHION		
9	SC44899-002	NUT		
10	SC10156-011	BAT.HOLDER BASE		
11	SC43571-002	BRACKET		
12	SC43568-001	SPRING		
13	SC43570-001	LOCK KNOB		
14	SC44886-001	PLATE		
15	SC20478-004	TERMINAL COVER		
16	SC31501-011	SHAFT HOLDER		
17	SC20477-011	B.H.COVER(2)		
18	MLSC0570-003	WIRE ASSEMBLY		
19	SC45152-001	NUT.PLATE		
20	PRD30955-04	ADJUST PLATE		
21	SC45150-002	PLATE		
S1	QYSPSPT2650M	SCREW	M2.6 x 5.0	
S2	QYSSSP2606M	SCREW	M2.6 x 6	
S3		SCREW	M2.6 x 5	·
S4		NUT		
S5	1	SCREW	M2 x 5	
S6		SCREW	M2 x 6	
S7	•	SCREW	M3 x 4 M3 x 5	
S8 S9		SCREW SCREW	M3 x 5	
S10	QYSSSPT2040M	SCREW	M2 × 4.0	

SECTION 6 ELECTRICAL PARTS LIST

SAFETY PRECAUTION:

Parts identified by the \triangle symbol are critical for safety. Replace only with specified parts numbers. For maximum reliability and performance, all other replacement parts should be identical to those specified.

NOTE:

- Parts not denoted by parts numbers are not supplied by JVC.
- Abbreviations in this list are as follows:

RESISTORS

In the "Description" column:

All resistance values are in ohms (Ω). k expresses kilo-ohm (1 000 ohms, k Ω). M expresses mega-ohm (106 ohms, M Ω).

In the "Parts Name" column:

CAR.RESISTOR : Carbon Resistor

C.M.F.RESISTOR: Constant Metalized Film Resistor

COMP.RESISTOR: Composition Resistor

FUSI.RESISTOR: Fusible Resistor
M.F.RESISTOR: Metal Film Resistor
M.G.RESISTOR: Metal Graze Resistor
M.P.RESISTOR: Metal Plate Resistor

O.M.F.RESISTOR: Oxide Metalized Film Resistor

TRIM.RESISTOR: Trimerer Resistor

U.F.RESISTOR : Non-inflammable Resistor

VAL.RESISTOR : Valiable Resistor
W.W.RESISTOR : Wire Wound Resistor

CAPACITORS

In the "Description" column:

All capacitance values are in microfarad (μ F) unless

otherwise indicated.

p expresses picofarad (10⁻¹² farad,pF).

In the "Parts Name" column:

CER.CAPACITOR : Ceramic Capacitor E.CAPACITOR : Electrolytic Capacitor

FILM CAPACITOR : Film Capacitor

M.F.CAPACITOR : Metalized Film Capacitor

MICA CAPACITOR: Mica Capacitor

MPP CAPACITOR : Metalized PolyPropylene Capacitor MPPS CAPACITOR : Metalized PolyPhenylene Sulfied film

Capacitor

M.M.CAPACITOR : Metalized Mylar Capacitor

MYLAR CAPACITOR: Mylar Capacitor

N.P.CAPACITOR : Non-Poler electrolytic Capacitor

P.P.CAPACITOR : PolyPropylene Capacitor

PPS CAPACITOR : PolyPhenylene Sulfied film Capacitor

P.S.CAPACITOR : PolyStyrene Capacitor
TAN.CAPACITOR : Tantal Capacitor
TRIM.CAPACITOR : Trimer Capacitor
VAL.CAPACITOR : Valiable Capacitor

Note: In the "Description" column of the parts list, (U) means the parts for the U version while (E) is for the E version.

Symbol No.	Part No.	Part Name	Description		
IC1	SCV1585-064	I.C.(M)	JVC	(U)	← for U version
ļ	SCV1585-067	I.C.(M)	1 NC	(E)	← for E version

6.1 DR BOARD ASSEMBLY PARTS LIST 0 1 SCK2524-01-U0A(U)

SCK2524-01-P0A(E)

		$\overline{}$	$\overline{}$				
U		i I	ΙI	1	1 1	1 1	1 1

Ī	Symbol No.	Part No.	Part Name	Description
Ī	IC1 IC2	UPD9438BGK-BE9 JCS0028	I.C.(M) I.C.(M)	NEC JVC
- 1	IC3	TC74HC04AF-X	I.C.(M)	TOSHIBA
- 1				NEC
- [IC4	UPC78L05T-X	I.C.(M)	
	IC5	TC74VHC08FT-X	I.C.(M)	TOSHIBA
	IC6	TC7SH86FU-X	I.C.(M)	TOSHIBA
ı	IC7	TC7SH32FU-X	I.C.(M)	TOSHIBA
- 1	IC8	TC7S04F-X	I.C.(M)	TOSHIBA
- 1	IC9	TC7SH32FU-X	I.C.(M)	TOSHIBA
	IC10	TLC2932IPW	I.C.(M)	TEXAS
- 1	IC11	TC7S08F-X	I.C.(M)	TOSHIBA
-	IC12	MB88345PF	I.C.(M)	FUJITSU
- 1	IC14	TC4S11F-X	I.C.(M)	TOSHIBA
-	IC16	TC4S81F-X	I.C.(M)	TOSHIBA
١	IC17	TC4S11F-X	I.C.(M)	TOSHIBA
- 1	IC18	TC7S04F-X	I.C.(M)	TOSHIBA
- 1	IC19	TC7S04F-X	I.C.(M)	TOSHIBA
- 1	IC101	AD8011AR-X	I.C.(M)	ANALOG DEVICES
- 1	IC101	TC4W53F-X	I.C.(M)	TOSHIBA
-	IC102	AD8041AR-XE	I.C.(M)	ANALOG DEVICES
	10103	ADOU4 TAN-AL	1.0.(141)	i
	IC104	LMC6082IM-X	I.C.(M)	NATIONAL SEMICO
١	IC201	AD8011AR-X	I.C.(M)	ANALOG DEVICES
ı	IC201	TC4W53F-X	I.C.(M)	TOSHIBA
ı		1		ANALOG DEVICES
ı	IC203	AD8041AR-XE	I.C.(M)	NATIONAL SEMICO
	IC204	LMC6082IM-X	I.C.(M)	ANALOG DEVICES
ı	IC301	AD8011AR-X	1.C.(M)	
	IC302	TC4W53F-X	I.C.(M)	TOSHIBA
	IC303	AD8041AR-XE	I.C.(M)	ANALOG DEVICES
	IC401	NJM062M-X	I.C.(M)	JRC
	IC402	TC4S66F-X	I.C.(M)	TOSHIBA
	10.400	AL IN 40000 A V	10 (14)	JRC
	IC403	NJM062M-X	I.C.(M)	
	IC502	TC4S66F-X	I.C.(M)	TOSHIBA
	IC503	NJM062M-X	I.C.(M)	JRC
	IC601	NJM062M-X	I.C.(M)	JRC
	IC602	TC4S66F-X	I.C.(M)	TOSHIBA
	IC603	NJM062M-X	I.C.(M)	JRC
	IC701	NJM062M-X	I.C.(M)	JRC
- 1	IC702	UPD16510GR-X	1.C.(M)	NEC
	IC703	UPD16510GR-X	I.C.(M)	NEC
1	IC802	UPD16510GR-X	I.C.(M)	NEC
- 1				NEO.
	IC803	UPD16510GR-X	I.C.(M)	NEC
	IC901	NJM062M-X	I.C.(M)	JRC
ı	IC902	UPD16510GR-X	I.C.(M)	NEC
- 1	IC903	UPD16510GR-X	I.C.(M)	NEC
				DOUB.
-	Q1	DTA124EUA-X	TRANSISTOR	ROHM
- 1	Q3	MSC3930/B/-X	TRANSISTOR	MOTOROLA
	Q4	2SB1219/QR/-X	TRANSISTOR	MATSUSHITA
- 1	Q5	2SD1820/QR/-X	TRANSISTOR	MATSUSHITA
ļ	Q6	2SD1820/QR/-X	TRANSISTOR	MATSUSHITA
- 1	Q7	2SD1820/QR/-X	TRANSISTOR	MATSUSHITA
- 1	Q8	2SB1219/QR/-X	TRANSISTOR	MATSUSHITA
- 1	Q35	2SB1219/QR/-X	TRANSISTOR	MATSUSHITA
- 1	Q101	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA
- 1	Q103	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA
	_	1		
-	Q104	3SK157/4-6/-W	FET	NEC
-	Q105	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA
1	Q106	MSC3930/B/-X	TRANSISTOR	MOTOROLA
	Q107	3SK157/4-6/-W	FET	NEC
	Q201	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA
	Q203	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA
	Q204	3SK157/4-6/-W	FET	NEC
	Q205	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA
- 1	Q206	MSC3930/B/-X	TRANSISTOR	MOTOROLA
١	Q207	3SK157/4-6/-W	FET	NEC
ı				
	Q301	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA
ı	Q303	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA
ı	Q304	3SK157/4-6/-W	FET	NEC
ļ	Q305	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA
]	Q306	MSC3930/B/-X	TRANSISTOR	MOTOROLA
	Q307	3SK157/4-6/-W	FET	NEC
	Q701	2SA1462/3-4/-X	TRANSISTOR	NEC
	Q701	2SC3735/4-5/-X	TRANSISTOR	NEC
	2,02	-300703/4-0/-/	THAT TO TO TO TE	

Symbol No.	Part No.	Part Name	Descrip	otion
Q801 Q802	2SA1462/3-4/-X 2SC3735/4-5/-X	TRANSISTOR TRANSISTOR	NEC NEC	
Q901 Q902	2SA1462/3-4/-X 2SC3735/4-5/-X	TRANSISTOR TRANSISTOR	NEC NEC	
D2 D3 D6 D7 D403 D503 D603 D701 D702 D703	MA142A-X MA142WA-X MA142WA-X MA142WA-X MA742-X MA742-X MA742-X MA143A-X MA143A-X MA142WA-X MA142WA-X	DIODE	MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA	
D704 D705 D801 D802 D803 D804 D805 D902 D904 D905	MA742-X MA742-X MA143A-X MA142WA-X MA142WA-X MA742-X MA742-X MA742-X MA742-X MA742-X MA742-X	DIODE	MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA	
R1 R2 R4 R5 R6 R7 R8 R9 R12 R13	NRSA63J-0R0X NRSA63J-0R0X NRSA63D-331X NRSA63D-561X NRSA63D-101X NRSA63D-221X NRSA63D-220X NRSA63D-101X NRSA63D-471X NRSA63D-101X	M.G.RESISTOR	0 0 0 330 560 100 220 22 100 470 100	1/16W (E) 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W
R14 R15 R16 R17 R18 R19 R20 R21 R22- R23	NRSA63D-101X NRSA63D-220X NRSA63D-220X NRSA63D-220X NRSA63D-080X NRSA63D-103X NRSA63D-103X NRSA63D-080X NRSA63D-330X NRSA63D-151X NRSA63J-0R0X	M.G.RESISTOR	100 22 22 22 22 0 10k 0 33 150	1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W
R24 R25 R26 R27 R28 R29 R30 R31 R32 R33	NRSA63D-563X NRSA63D-333X NRSA63D-330X NRSA63J-0R0X NRSA63D-393X NRSA63D-333X NRSA63D-104X NRSA63D-104X NRSA63D-102X NRSA63D-102X	M.G.RESISTOR	56k 33k 33 0 39k 33k 100k 22k 1k	1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W
R34 R35 R37 R39 R42 R44 R45 R46 R47	NRSA63J-0R0X NRSA63J-0R0X NRSA63J-0R0X NRSA63J-0R0X NRSA63J-0R0X NRSA63J-0R0X NRSA63J-0R0X NRSA63J-0R0X NRSA63D-272X NRSA63D-751X NRSA63D-103X	M.G.RESISTOR	0 0 0 0 0 0 0 0 0 0 2.7k 750 10k	1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W 1/16W
R49 R50 R51 R52 R53 R54	NRSA63D-103X NRSA63D-103X NRSA63D-102X NRSA63D-102X NRSA63D-102X NRSA63J-0R0X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	10k 10k 1k 1k 1k 0	1/16W 1/16W 1/16W 1/16W 1/16W 1/16W

Symbol No.	Part No.	Part Name	Description
	NIDCACO LODOV	M C BECICTOR	0 1/16W
R55 R56	NRSA63J-0R0X NRSA63J-0R0X	M.G.RESISTOR M.G.RESISTOR	0 1/16W 0 1/16W
R57	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R58	NRSA63D-181X	M.G.RESISTOR	180 1/16W
R59	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
Hos	NHSA63J-UHUX	IVI.G.NESISTON	1/1000
R60	NRSA63D-221X	M.G.RESISTOR	220 1/16W
R61	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R62	NRSA63J-4R7X	M.G.RESISTOR	4.7 1/16W
R63	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R64	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R65	NRSA63D-822X	M.G.RESISTOR	8.2k 1/16W
R66	NRSA63D-123X	M.G.RESISTOR	12k 1/16W
R67	NRSA63J-100X	M.G.RESISTOR	10 1/16W
R68	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R69	NRSA63D-222X	M.G.RESISTOR	2.2k 1/16W
R70	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R71	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R72	NRSA63D-822X	M.G.RESISTOR	8.2k 1/16W
R73	NRSA63D-123X	M.G.RESISTOR	12k 1/16W
R74	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R75	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R76	NRSA63D-183X	M.G.RESISTOR	18k 1/16W
R77	NRSA63D-392X	M.G.RESISTOR	3.9k 1/16W
R78	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R79	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
D00	NIDCACOD ODOV	M C DECICEOD	221- 1/16/0/
R80	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R81	NRSA63D-822X	M.G.RESISTOR	8.2k 1/16W
R82	NRSA63D-562X	CAR.RESISTOR	5.6k 1/4W
R90	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R91	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R92	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W 220 1/16W
R101 R102	NRSA63D-221X	M.G.RESISTOR M.G.RESISTOR	560 1/16W
	NRSA63D-561X	M.G.RESISTOR	47k 1/16W
R103 R104	NRSA63D-473X NRSA63D-223X	M.G.RESISTOR	22k 1/16W
11104	NNSA03D-223A	W.G.NESISTON	1/1000
R105	NRSA63D-221X	M.G.RESISTOR	220 1/16W
R106	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R107	NRSA63D-301X	M.G.RESISTOR	300 1/16W
R110	NRSA63D-680X	M.G.RESISTOR	68 1/16W
R111	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R112	NRSA63D-220X	M.G.RESISTOR	22 1/16W
R113	NRSA63D-272X	M.G.RESISTOR	2.7k 1/16W
R114	NRSA63D-181X	M.G.RESISTOR	180 1/16W
R115	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R116	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
D447	NDCACOD 100V	M.G.RESISTOR	10k 1/16W
R117 R118	NRSA63D-103X	M.G.RESISTOR	10k 1/16W 10k 1/16W
R119	NRSA63D-103X	M.G.RESISTOR	330k 1/16W
R120	NRSA63D-334X NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R122	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R124	NRSA63D-823X	M.G.RESISTOR	82k 1/16W
R201	NRSA63D-221X	M.G.RESISTOR	220 1/16W
R202	NRSA63D-561X	M.G.RESISTOR	560 1/16W
R203	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R204	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R205	NRSA63D-221X	M.G.RESISTOR	220 1/16W
R206	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R207	NRSA63D-301X	M.G.RESISTOR	300 1/16W
R210	NRSA63D-680X	M.G.RESISTOR	68 1/16W
R211	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R212	NRSA63D-220X	M.G.RESISTOR	22 1/16W
R213	NRSA63D-272X	M.G.RESISTOR	2.7k 1/16W
R214	NRSA63D-181X	M.G.RESISTOR	180 1/16W
R215 R216	NRSA63D-102X NRSA63D-472X	M.G.RESISTOR M.G.RESISTOR	1k 1/16W 4.7k 1/16W
11210	1113A03D-4/2A	IW.O.NESISTON	T./ N 1/10VV
R217	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R218	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R219	NRSA63D-334X	M.G.RESISTOR	330k 1/16W
R220	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R223	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R224	NRSA63D-823X	M.G.RESISTOR	82k 1/16W
R226	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R227	NRSA63D-122X	M.G.RESISTOR	1.2k 1/16W

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Symbol No.	Part No.	Part Name	Descri	ption
R228	NRSA63D-243X	M.G.RESISTOR	24k	1/16W
R250	NRSA63D-472X	M.G.RESISTOR	4.7k 22k	1/16W 1/16W
R260	NRSA63D-223X	M.G.RESISTOR	22K	1/10/4
R251	NRSA63D-392X	M.G.RESISTOR	3.9k	1/16W
R252	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R301	NRSA63D-221X	M.G.RESISTOR	220	1/16W
R302	NRSA63D-561X	M.G.RESISTOR M.G.RESISTOR	560 47k	1/16W 1/16W
R303 R304	NRSA63D-473X NRSA63D-223X	M.G.RESISTOR	22k	1/16W
R305	NRSA63D-221X	M.G.RESISTOR	220	1/16W
R306	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R307 R310	NRSA63D-301X NRSA63D-680X	M.G.RESISTOR M.G.RESISTOR	300 68	1/16W 1/16W
R311	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R312	NRSA63D-220X	M.G.RESISTOR	22	1/16W
R313	NRSA63D-272X	M.G.RESISTOR	2.7k	1/16W
R314	NRSA63D-181X	M.G.RESISTOR	180 1k	1/16W 1/16W
R315 R316	NRSA63D-102X NRSA63D-472X	M.G.RESISTOR M.G.RESISTOR	4.7k	1/16VV
R317	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R318	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R319 R320	NRSA63D-334X NRSA63J-0R0X	M.G.RESISTOR M.G.RESISTOR	330k 0	1/16 VV 1/16 VV
R324	NRSA63D-823X	M.G.RESISTOR	82k	1/16W
R324 R360	NRSA63D-823X	M.G.RESISTOR	22k	1/16VV
R402	NRSA63D-224X	M.G.RESISTOR	220k	1/16W
R403	NRSA63D-274X	M.G.RESISTOR	270k	1/16W
R404	NRSA63D-124X	M.G.RESISTOR	120k 120k	1/16VV 1/16VV
R406 R407	NRSA63D-124X NRSA63D-124X	M.G.RESISTOR M.G.RESISTOR	120k	1/16VV
R408	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R412	NRSA63D-183X	M.G.RESISTOR	18k	1/16W
R413	NRSA63D-274X	M.G.RESISTOR	270k	1/16VV
R414 R415	NRSA63D-363X NRSA63D-102X	M.G.RESISTOR M.G.RESISTOR	36k 1k	1/16 VV 1/16 VV
R416	NRSA63D-104X	M.G.RESISTOR	100k	1/16VV
R417	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R418 R419	NRSA63D-821X NRSA63D-821X	M.G.RESISTOR M.G.RESISTOR	820 820	1/16 VV 1/16 VV
R419	NRSA63D-821X	M.G.RESISTOR	8.2k	1/16VV
R421	NRSA63D-243X	M.G.RESISTOR	24k	1/16W
R422	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R423	NRSA63D-103X	M.G.RESISTOR	10k	1/16 V V
R424 R425	NRSA63D-752X NRSA63D-822X	M.G.RESISTOR M.G.RESISTOR	7.5k 8.2k	1/16VV 1/16VV
R426	NRSA63D-823X	M.G.RESISTOR	82k	1/16W
R427	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R503	NRSA63D-274X	M.G.RESISTOR	270k	1/16W
R504 R505	NRSA63D-124X NRSA63D-334X	M.G.RESISTOR M.G.RESISTOR	120k 330k	1/16 ₩ 1/16 ₩
R506	NRSA63D-124X	M.G.RESISTOR	120k	1/16VV
R507	NRSA63D-334X	M.G.RESISTOR	330k	1/16W
R508	NRSA63D-101X	M.G.RESISTOR	100	1/16 VV
R512	NRSA63D-183X	M.G.RESISTOR	18k 270k	1/16W 1/16W
R513 R514	NRSA63D-274X NRSA63D-363X	M.G.RESISTOR M.G.RESISTOR	36k	1/16 VV
R515	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R516	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R517	NRSA63D-104X	M.G.RESISTOR	100k	1/16 ₩ 1/16 ₩
R518 R519	NRSA63D-821X NRSA63D-821X	M.G.RESISTOR M.G.RESISTOR	820 820	1/16 V V
R520	NRSA63D-822X	M.G.RESISTOR	8.2k	1/16 W
R521	NRSA63D-393X	M.G.RESISTOR	39k	1/16W
R522	NRSA63D-102X	M.G.RESISTOR	1k 7.5k	1/16 W 1/16 W
R524 R525	NRSA63D-752X NRSA63D-153X	M.G.RESISTOR M.G.RESISTOR	15k	1/16 V
R526	NRSA63D-304X	M.G.RESISTOR	300k	1/16W
R527	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R602	NRSA63D-224X	M.G.RESISTOR	220k	1/16W
R603 R604	NRSA63D-274X NRSA63D-124X	M.G.RESISTOR M.G.RESISTOR	270k 120k	1/16 W 1/16 W
R606	NRSA63D-124X	M.G.RESISTOR	120k	1/16W
	<u> </u>	<u> </u>		

	Symbol No.	Part No.	Part Name	D	escription	Symbol No.	Part No.	Part Name		Description
	<u> </u>	NRSA63D-124Y	M.G. BESISTOR	120k	1/16\//	C24	NCB31CK-473X	CER.CAPACITOR	0,047	16V
MRSARED PARK M. G.RESISTOR 196 1769V										
				1						
Resid MRSAGED-102X MS - RESISTOR 100										
RRISARSD-1004	R614									
MRSAGD-100X MIS_RESISTOR MID MIS_RESISTOR	R615	NRSA63D-102X	M.G.RESISTOR	1k	1/16W					
Responsibility Resp	R616	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C30	NBE71CM-476X	TAN.CAPACITOR		
Respon Responder Respond		NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C31	NCB31CK-473X	CER.CAPACITOR	0.047	16V
Ref Responsibility							NCB31CK-473X	CER.CAPACITOR	0.047	16V
RE20									0.047	16V
RE21 READ-192X	1.0.0				.,					
Re21 MRSAGD-198X M. G. RESISTOR 19k 1/16W C.35 M. CSB1CA-27X CER.CARACTOR 0.047 19V 19V C.35 MRSAGD-18X M. G. RESISTOR 19k 1/16W C.35 MRSAGD-18X M. G. RESISTOR 19k 1/16W C.37 MRSAGD-18X M. G. RESISTOR 19k C.37 MRSAGD-16X M. G. RESISTOR 19k MRSAGD-16X M. G. RESIST	B620	NBSA63D-822X	M G RESISTOR	8 2k	1/16W	C34	NCB31CK-473X	CER.CAPACITOR	0.047	16V
RES2 MRSAGD-192X M. G. RESISTOR 18 1769W C37 RESTOR 17 RESTOR 18 1769W C37 RESTOR 18 1769W C38 RESTOR 18 1769W C38 RESTOR 18 1769W C39 RESTOR 18 1769W C38 RESTOR 18 1769W C39 RESTOR 1769W		(· ·			16V
RE23 RE24 RE25										
								1		
Record R										
Reize Reiz										
RESTOR MESAGED-102X M. G. RESISTOR 10										
R704 RR54801-106X M. G. RESISTOR 100k 17/6W C42 NBE21CM-225X TANCAPACITOR 10 6.3V R704 RR54801-106X M. G. RESISTOR 100k 17/6W C43 NBE20LM-106X CARACTOR 10 6.3V R707 RR54801-106X M. G. RESISTOR 100k 17/6W C45 NBE21CM-226X CARACTOR 10 10V C46 RR54801-106X M. G. RESISTOR 10 17/6W C47 RR54801-106X M. G. RESISTOR 10 17/6W C48 RR54801-106X M. G. RESISTOR 100k 17/6W C59 RR	R626	NRSA63J-105X	M.G.RESISTOR							
R700 NRSA63D-104X M.G. RESISTOR 100k 17/80V C45 NEB-90M-107X E.CAPACITOR 100 6.3V	R627	NRSA63D-102X	M.G.RESISTOR	1k	1/16W	C41	NBE71CM-476X			
R706 NRSA683-100X M. G. RESISTOR 1M 1/16W C44 NEB20LM-106X TAN. CAPACITOR 10 6.3V 10 10 10 10 10 10 10 1	R703	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C42	NBE21CM-225X	TAN.CAPACITOR	2.2	
R706 NRSA63J-106X M. G. RESISTOR 1M 17/6W C44 NBE20JM-106X TAN. CAPACITOR 10 6.3V 16 16 17 17 17 17 17 17	R704	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C43	NEH90JM-107X	E.CAPACITOR	100	6.3V
R707 R85483-100X M. G. RESISTOR 10 1/16W C49 NEBS1CH4/47X CERCAPACTOR 10 16V R709 R85483-100X M. G. RESISTOR 10 1/16W C47 NEBS1CH4/47X CERCAPACTOR 10 16V R709 R854850-104X M. G. RESISTOR 100 1/16W C47 NEBS1CH4/47X CERCAPACTOR 104 16V R709 R854850-104X M. G. RESISTOR 100 1/16W C48 NEBS1CH4/47X CERCAPACTOR 104 16V R709 R854850-104X M. G. RESISTOR 100 1/16W C48 NEBS1CH4/47X CERCAPACTOR 104 16V R709 R854850-104X M. G. RESISTOR 100 1/16W C48 NEBS1CH4/23X CARCAPACTOR 104 16V R809 R854850-104X M. G. RESISTOR 100 1/16W C52 NEBS1CH4/23X CARCAPACTOR 12 16V R809 R854850-104X M. G. RESISTOR 100 1/16W C52 NEBS1CH4/23X CARCAPACTOR 15 16V R809 R854850-104X M. G. RESISTOR 100 1/16W C52 NEBS1CH4/23X CERCAPACTOR 104 16V R809 R854850-104X M. G. RESISTOR 100 1/16W C58 NEBS1CH4/23X CERCAPACTOR 104 16V R809 R854850-104X M. G. RESISTOR 100 1/16W C58 NEBS1CH4/10X C58 NEBS1CH4/10X C58 NEBS1CH4/10X C58 R809 R854850-104X M. G. RESISTOR 100 1/16W C58 NEBS1CH4/10X C58 R809 R854850-104X M. G. RESISTOR 100 1/16W C58 NEBS1CH4/10X C58 NEBS1CH4/10X C58 R809 R854850-104X M. G. RESISTOR 100 1/16W C58 NEBS1CH4/10X C58					, , ,	1				
R707 R85431-100X	B705	NBSA63 I-105X	M G BESISTOR	1M	1/16W	C44	NBE20JM-106X	TAN.CAPACITOR	10	6.3V
R709 NRSA63-1-100X M. G.RESISTOR 10 1/16W C48 NCB31CK-473X CER.CAPACTIOR 0.047 16V C48 NRSA63D-103X M. G.RESISTOR 100 1/16W C48 NCB31CK-473X CER.CAPACTIOR 0.047 16V C48 NRSA63D-103X C47 NEB-4680M-478X C48 C47 NEB-4680M-478X C47 C48 C4										
R709 NRSA63D-100X M. G. RESISTOR 100 1/16W C49 NRSA63D-104X G. REAPACTIOR 0.047 16V R710 NRSA63D-104X M. G. RESISTOR 56 1/16W C49 NRSA63D-104X TAN CAPACTIOR 2.2 16V R720 NRSA63D-104X M. G. RESISTOR 100 1/16W C50 NRSA63D-104X C47 R020 R036ABD-104X M. G. RESISTOR 100 1/16W C51 NRS21CM-228X TAN CAPACTIOR 2.2 16V R020 R036ABD-104X M. G. RESISTOR 100 1/16W C51 NRS21CM-228X TAN CAPACTIOR 2.2 16V R020 R036ABD-104X M. G. RESISTOR 100 1/16W C53 NRS21CM-228X TAN CAPACTIOR 2.2 16V R020 R036ABD-104X M. G. RESISTOR 100 1/16W C53 NRS21CK-473X CER. CAPACTIOR 0.047 16V R020 R036ABD-104X M. G. RESISTOR 100 1/16W C55 NRS21L-104X R020 R036ABD-104X M. G. RESISTOR 100 1/16W C56 NRS21L-104X R020 R036ABD-104X M. G. RESISTOR 100 1/16W C56 R020H-114/20X C47 R036ABD-104X R036ABD-104X M. G. RESISTOR 100 1/16W C57 NDC31H-12/0X C47 R036ABD-104X										
R710										
B710 MPSAGD1-B60X M. G. RESISTOR 56 1/16W C50 MRE21CM-22BX TAN CAPACITOR 2.2 16V R779 MRSAGD1-B0X M. G. RESISTOR 10b 1/16W C51 MRE21CM-22BX TAN CAPACITOR 2.2 16V R804 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C51 MRE21CM-22BX TAN CAPACITOR 2.2 16V R804 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C52 MRE41CM-18BX TAN CAPACITOR 1.5 16V R804 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C53 MRSAGD1-D0X C57 C57 MRSAGD1-D0X C57 C57 MRSAGD1-D0X C57 MRSAGD1-D0X C57 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C58 MRSAGD1-D0X C57 C57 MRSAGD1-D0X C57 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C58 MRSAGD1-D0X C57 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C58 MRSAGD1-D0X C57 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C58 MRSAGD1-D0X C57 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C58 MRSAGD1-D0X C57 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C58 MRSAGD1-D0X C57 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C58 MRSAGD1-D0X M. G. RESISTOR 10b 1/16W C59 MRSAGD1-D0X MRSAGD	1									
R779 NRSASD-108X M. G.RESISTOR S6 1/16W C51 NBE-00M-372 TAN CAPACITOR 47 R179 NRSASD-108X M. G.RESISTOR 100k 1/16W C52 NBE-11CM-22EX TAN CAPACITOR 12 16V R1800 NRSASD-106X M. G.RESISTOR 100k 1/16W C53 NGS31CK-473X CER. CAPACITOR 0.047 16V R1800 NRSASD-106X M. G.RESISTOR 100k 1/16W C53 NGS31CK-473X CER. CAPACITOR 0.047 16V R1800 NRSASD-106X M. G.RESISTOR 100k 1/16W C55 NBE-21EM-106X TAN CAPACITOR 0.047 16V R1800 NRSASD-106X M. G.RESISTOR 100k 1/16W C55 NBE-21EM-106X TAN CAPACITOR 100k 1/16W C56 NBE-21EM-106X TAN CAPACITOR 100k 1/16W										
R779 NRSASBD-102X M.G. RESISTOR 100k 116W C51 NBE21CM-25X TAN CAPACITOR 2.2 16V R804 NRSASBD-104X M.G. RESISTOR 100k 116W C52 NBE21CM-155X TAN CAPACITOR 0.047 16V R806 NRSASBD-103X M.G. RESISTOR 10K 116W C55 NE21EM-105X TAN CAPACITOR 0.047 16V R806 NRSASBD-103X M.G. RESISTOR 10k 116W C55 NE21EM-105X TAN CAPACITOR 0.74 16V C59 NBE21EM-105X TAN CAPACITOR 0.047 16V C59 NB	1									VOI
R800 MRS.ASQ.1-104X M. G. RESISTOR 100k 17/16W C52 NBE-41CM-156X TAN CAPACITOR 15 16V 16W R806 NRS.ASQ.1-106X M. G. RESISTOR 10k 17/16W C56 NCB31CK-473X CER. CAPACITOR 0.047 16V R806 NRS.ASQ.1-100X M. G. RESISTOR 10k 17/16W C56 NDE21EM-100X CER. CAPACITOR 0.047 16V R806 NRS.ASQ.1-100X M. G. RESISTOR 10 17/16W C56 NDE21EM-100X CER. CAPACITOR 27p 50V R808 NRS.ASQ.1-100X M. G. RESISTOR 10 17/16W C57 NDC31H-12/60X CER. CAPACITOR 27p 50V C808 NRS.ASQ.1-100X M. G. RESISTOR 100 17/16W C57 NDC31H-12/60X CER. CAPACITOR 27p 50V C808 NRS.ASQ.1-100X M. G. RESISTOR 100 17/16W C58 NBE31EM-106X CER. CAPACITOR 10 25V R810 NRS.ASQ.1-100X M. G. RESISTOR 56 17/16W C89 NBE31AN-1228X TAN CAPACITOR 10 25V R810 NRS.ASQ.1-100X M. G. RESISTOR 56 17/16W C102 NCB31CK-473X CER. CAPACITOR 27p 270 NDC31H-160X NRS.ASQ.1-100X M. G. RESISTOR 100k 17/16W C102 NCB31CK-473X CER. CAPACITOR 20 NRS.ASQ.1-100X M. G. RESISTOR 100k 17/16W C102 NCB31CK-473X CER. CAPACITOR 0.047 16V NRS.ASQ.1-100X M. G. RESISTOR 100k 17/16W C106 NCB31CK-473X CER. CAPACITOR 0.047 16V NRS.ASQ.1-100X M. G. RESISTOR 100k 17/16W C106 NCB31CK-473X CER. CAPACITOR 0.047 16V NRS.ASQ.1-100X M. G. RESISTOR 10 17/16W C106 NCB31CK-473X CER. CAPACITOR 0.047 16V NRS.ASQ.1-100X M. G. RESISTOR 10 17/16W C106 NCB31CK-473X CER. CAPACITOR 0.047 16V NRS.ASQ.1-100X M. G. RESISTOR 10 17/16W C106 NCB31CK-473X CER. CAPACITOR 0.047 16V NRS.ASQ.1-100X M. G. RESISTOR 56 17/16W C106 NCB31CK-473X CER. CAPACITOR 0.047 16V NRS.ASQ.1-100X M. G. RESISTOR 56 17/16W C106 NCB31CK-473X CER. CAPACITOR 0.047 16V NRS.ASQ.1-100X M. G. RESISTOR 56 17/16W C106 NCB31CK-473X CER. CAPACITOR 0.047 16V NRS.ASQ.1-100X M. G. RESISTOR 56 17/16W C106 NCB31										4.00.7
R804 NRSA63D-104X M.G.RESISTOR 100k 1/16W C53 NCB31CK-473X CER.CAPACITOR 0.047 16V	R779	NRSA63D-103X								
R805 NRSA83-100X	R803	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C52	NBE41CM-156X	TAN.CAPACITOR		
R806 NRSA63J-105X N.G. RESISTOR 10K 176W C56 NCB31CK-473X CER. CAPACITOR 1 25V R806 NRSA63J-100X M.G. RESISTOR 10 176W C56 NCB31LK-473X CAPACITOR 1 25V R806 NRSA63J-100X M.G. RESISTOR 10 176W C57 NCB31LK-473X CAPACITOR 279 50V R806 NRSA63J-100X M.G. RESISTOR 10D 176W C57 NCB31LK-473X CAPACITOR 279 50V R806 NRSA63J-100X M.G. RESISTOR 10D 176W C57 NCB31LK-473X CAPACITOR 12 10V R810 NRSA63D-100X M.G. RESISTOR 10D 176W C83 NREFIELD R806 NRSA63D-100X M.G. RESISTOR 10D 176W C84 NREFIELD R806 NRSA63D-100X M.G. RESISTOR 10D 176W C84 NREFIELD R806 NRSA63D-100X M.G. RESISTOR 10D 176W C103 NRSA63D-100X M.G. RESISTOR 10D 176W C105 NRSA63D-100X M.G. RESIS	R804	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C53	NCB31CK-473X	CER.CAPACITOR	0.047	16V
R806						i				
R806 NRSA63L-100X M. G. RESISTOR 10 1/16W C56 NRE21EM-105X TAN.CAPACITOR 1 25V R808 NRSA63L-100X M. G. RESISTOR 10 1/16W C56 NDC21H-J26TOR 27p 50V R809 NRSA63L-100X M. G. RESISTOR 10 1/16W C58 NDC21H-J26TOR 1 10 25V R809 NRSA63D-560X M. G. RESISTOR 56 1/16W C84 NRSA63D-560X M. G. RESISTOR 56 1/16W C84 NRE21EM-105X TAN.CAPACITOR 1 25V R803 NRSA63D-104X M. G. RESISTOR 56 1/16W C98 NRSA63D-104X M. G. RESISTOR 100K 1/16W C102 NCB31CK-473X CER.CAPACITOR 0.0-47 16V R806 NRSA63D-104X M. G. RESISTOR 100K 1/16W C102 NCB31CK-473X CER.CAPACITOR 0.0-47 16V R806 NRSA63D-104X M. G. RESISTOR 10K 1/16W C103 NCB31CK-473X CER.CAPACITOR 0.0-47 16V R806 NRSA63D-104X M. G. RESISTOR 10K 1/16W C104 NDC31H-J680X CER.CAPACITOR 0.0-47 16V R806 NRSA63D-100X M. G. RESISTOR 10K 1/16W C105 NCB31CK-473X CER.CAPACITOR 0.0-47 16V R806 NRSA63D-100X M. G. RESISTOR 10K 1/16W C105 NCB31CK-473X CER.CAPACITOR 0.0-47 16V R806 NRSA63D-100X M. G. RESISTOR 10K 1/16W C106 NCB31CK-473X CER.CAPACITOR 0.0-47 16V R806 NRSA63D-100X M. G. RESISTOR 10K 1/16W C106 NCB31CK-473X CER.CAPACITOR 0.0-47 16V NRSA63D-560X M. G. RESISTOR 10K 1/16W C106 NCB31CK-473X CER.CAPACITOR 0.0-47 16V NRSA63D-560X M. G. RESISTOR 10K 1/16W C106 NCB31CK-473X CER.CAPACITOR 0.0-47 16V NRSA63D-560X NRSA63D-560	B805	NRSA63J-105X	M.G.RESISTOR	1M	1/16W	C54	NCB31CK-473X	CER.CAPACITOR	0.047	16V
R807 NRSA631-100X NG G.RESISTOR 10 1/16W								TAN.CAPACITOR	1	25V
R808 NRSA83-100X M. G. RESISTOR 100 17/6W C84 NRSA83-104X M. G. RESISTOR 56 17/6W C84 NRSA83-160X M. G. RESISTOR 56 17/6W C84 NRSA83-160X M. G. RESISTOR 56 17/6W C84 NRSA83-160X M. G. RESISTOR 56 17/6W C98 NRSA83-160X M. G. RESISTOR 56 17/6W C98 NRSA83-160X M. G. RESISTOR 100 17/6W C102 NCB31CK-472X CRC. APACITOR 0.047 16V R806 NRSA83-160X M. G. RESISTOR 100 17/6W C102 NCB31CK-472X CRC. APACITOR 0.047 16V R806 NRSA83-160X M. G. RESISTOR 10 17/6W C104 NDC31H-J880X CER. CAPACITOR 0.047 16V R806 NRSA83-100X M. G. RESISTOR 10 17/6W C104 NDC31H-J880X CER. CAPACITOR 0.047 16V R806 NRSA83-100X M. G. RESISTOR 10 17/6W C106 NCB31CK-472X CER. CAPACITOR 0.047 16V R806 NRSA83-100X M. G. RESISTOR 10 17/6W C106 NCB31CK-472X CER. CAPACITOR 0.047 16V R806 NRSA83-100X M. G. RESISTOR 10 17/6W C106 NCB31CK-472X CER. CAPACITOR 0.047 16V C108 N									1 .	50V
R850										
Report NRS-AGB-BOX M. G. RESISTOR 56 1/16W C84 NRS-21EM-105X TAN CAPACITOR 1 25V Report NRS-AGB-BOX M. G. RESISTOR 56 1/16W C102 NRS-AGB-BOX TAN CAPACITOR 22 10V Report NRS-AGB-D104X M. G. RESISTOR 100K 1/16W C102 NRS-AGB-D104X M. G. RESISTOR 100K 1/16W C102 NRS-AGB-D104X M. G. RESISTOR 100K 1/16W C102 NRS-AGB-D104X M. G. RESISTOR 100K 1/16W C103 NRS-AGB-D104X M. G. RESISTOR 100K 1/16W C103 NRS-AGB-D104X M. G. RESISTOR 100K 1/16W C105 NRS-AGB-D60X M. G. RESISTOR 100K 1/16W C107 NRS-AGB-D60X M. G. RESISTOR 100K 1/16W C107 NRS-AGB-D60X M. G. RESISTOR 100K 1/16W C108 NRS-AGB-D60X										
Rept										
R990 NRSA891-104X M. G. RESISTOR 100k 1/16W										
R904 NFSA69J-106X M. G. RESISTOR 100k 17/16W C109 NCB31CK-473X CER.CAPACITOR 0.047 16V R905 NRSA63J-106X M. G. RESISTOR 10k 17/16W C106 NCB31CK-473X CER.CAPACITOR 0.047 16V R907 NRSA63J-100X M. G. RESISTOR 10 17/16W C106 NCB31CK-473X CER.CAPACITOR 0.047 16V R908 NRSA63J-100X M. G. RESISTOR 10 17/16W C107 NCB31CK-473X CER.CAPACITOR 0.047 16V R908 NRSA63J-100X M. G. RESISTOR 10 17/16W C107 NCB31CK-473X CER.CAPACITOR 0.047 16V R908 NRSA63J-100X M. G. RESISTOR 56 17/16W C109 NCB31CK-473X CER.CAPACITOR 0.047 16V R910 NRSA63D-560X M. G. RESISTOR 56 17/16W C109 NCB31CK-103X CER.CAPACITOR 0.047 16V R031CK-473X CER.CAPACITOR										
R906 NRSA63J-105X M.G. RESISTOR 1M 1/16W C104 NDC31HJ-680X CER.CAPACITOR 68p 50V										
R906 NRSA63D-103X M. G. RESISTOR 10	R904	NRSA63D-104X							1	
R907 RSA63J-100X R908 NRSA63J-100X R908 NRSA63J-100X R908 NRSA63J-100X R908 NRSA63J-100X R908 NRSA63J-100X R910 NRSA63J-560X R910 NRSA63D-560X R910 R91	R905	NRSA63J-105X	M.G.RESISTOR	1M	1/16W	C104	NDC31HJ-680X	CER.CAPACITOR	68p	50V
R907 RSA63J-100X R908 NRSA63J-100X R908 NRSA63J-100X R908 NRSA63J-100X R908 NRSA63J-100X R908 NRSA63J-100X R910 NRSA63J-560X R910 NRSA63D-560X R911 NRSA63D-560X R911 NRSA63D-560X R911 NRSA63D-560X R911 NRSA63D-560X R911 NRSA63D-560X R911 R9										
R908 NRSA63J-100X M.G.RESISTOR 10	R906	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	C105	NCB31CK-473X	CER.CAPACITOR	0.047	
R908 NRSA63J-100X M. G. RESISTOR 10	R907	NRSA63J-100X	M.G.RESISTOR	10	1/16W	C106	NCB31CK-473X	CER.CAPACITOR	0.047	
R910 NRSA63D-560X NG G. RESISTOR 56 1/16W C108 NCB31CK-473X CER.CAPACITOR 0.17 16V C104 NCB31CK-473X CER.CAPACITOR 0.17 16V C104 NCB31CK-473X CER.CAPACITOR 0.17 16V C104 NCB31CK-473X CER.CAPACITOR 0.047 16V C104 NCB31CK-473X	R908	NRSA63J-100X	M.G.RESISTOR	10	1/16W	C107	NCB21EK-104X	CER.CAPACITOR	0.1	25V
R8911 NRSA83D-560X M.G.RESISTOR 56 1/16W C19 N.CB31CK-104X CER.CAPACITOR 0.1 16W C19 N.CB31CK-104X CER.CAPACITOR 0.047 16W C10 N.CB31CK-104X C10 N.CB31C				56		C108	NCB31CK-473X	CER.CAPACITOR	0.047	16V
VR201 NVP1416-502X									0.1	16V
VR201 NVP1416-502X TRIM.RESISTOR 5k C120 NDC31HJ-560X CER.CAPACITOR 56p 50V C202 NDC31HJ-560X CER.CAPACITOR 0.047 16V C203 NCB31CK-473X CER.CAPACITOR 0.047 16V C204 NCB31CK-473X CER.CAPACITOR 0.047 16V C204 NCB31CK-473X CER.CAPACITOR 0.047 16V C205 NCB31CK-473X CER.	,,,,,,	11110/1002 000/1	14		,,					16V
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6.2 ISB BOARD ASSEMBLY PARTS LIST 02 SCK2523-01-00A 02

	6.2 ISB BOARD ASSEMBLY PARTS LIST 02 SCK2523-01-00A 02						
Symbol No.	Part No.	Part Name	Description	Symbol No.	Part No.	Part Name	Description
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LC1 LC7 LC101 CN1 CN2 CN3 CN4	EXC-CET471U SCV1804-222Z NQR0122-001X QGA1201C2-06X QGA1201C2-09X QGF0508F1-30X QGF0508F1-30X	LC FILTER LC FILTER LC FILTER CONNECTOR CONNECTOR CONNECTOR CONNECTOR	LC1-3 LC7-11 LC101-301 6PIN 9PIN 30PIN 30PIN	R14 R15 R16 R18 R19 R20 R21 R22 R24 R25	NRSA63D-224X NRSA63D-152X NRSA63D-391X NRSA63D-102X NRSA63D-181X NRSA63D-181X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-122X NRSA63D-822X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	220k 1/16W 1.5k 1/16W 390 1/16W 180 1/16W 180 1/16W 100 1/16W 100 1/16W 1.2k 1/16W 8.2k 1/16W
CN5 CN6 TP101	QGF0508F1-30X QGA1201C2-11X NNZ0022-001X	CONNECTOR CONNECTOR TEST POINT	30PIN 11PIN TP101-303	R26 R27 R30 R33 R34 R35	NRSA63D-102X NRSA63J-105X NRSA63J-105X NRSA63J-220X NRSA63D-102X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	1k 1/16W 1M 1/16W 1M 1/16W 22 1/16W 1k 1/16W 100 1/16W
K13 K17 K19 K102 K104 K105 K107 K108 K201 K202	SCV2662-027 NQR0292-001X NQR0265-001X SCV2662-027 NQR0292-001X SCV2662-027 NRSA63J-0R0X NQR0265-001X NQR0292-001X SCV2662-027 NGR0292-001X SCV2662-027	FERRITE BEADS FERAITE BEAD FERRITE BEADS FERRITE BEADS FERRITE BEADS M.G.RESISTOR FERRITE BEAD FERRITE BEAD FERRITE BEAD FERRITE BEAD FERRITE BEAD FERRITE BEADS	K13-16 K17,18,50,101 K19,49,51 K102,103 (U) K104,201 K105,106 0 1/16W K108-116 K201,204 (E) K202,203	C3 C6 C7 C8 C9 C10	NBE21AM-106X NBE21AM-106X NBE21EM-105X NBE21CM-225X NBE41VM-335X NCB31EK-103X NCB31EK-103X NCB31CK-473X NDC31HJ-680X NBE21CM-225X	TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	10 10V 10 10V 1 25V 2.2 16V 3.3 35V 0.01 25V 0.047 16V 68p 50V 2.2 16V
K207 K208 K301 K302 K305 K307 K308	NRSA63J-OROX NQR0265-001X NQR0292-001X SCV2662-027 SCV2662-027 NRSA63J-OROX NQR0265-001X	M.G.RESISTOR FERAITE BEAD FERAITE BEAD FERRITE BEADS M.G.RESISTOR FERAITE BEAD M.G.RESISTOR FERAITE BEAD	0 1/16W K208-216 K301,304 K302,303 K305,306 0 1/16W K308-316	C14 C15 C16 C17	NBE21CM-225X NDC31HJ-150X NDC31HJ-150X NBE21CM-225X NBE21CM-225X NBE21CM-225X NBE21CM-225X NDC31HJ-820X NDC31HJ-100X NCB31CK-473X	TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	2.2 16V 15p 50V 15p 50V 2.2 16V 2.2 16V 2.2 16V 2.2 16V 82p 50V 10p 50V 0.047 16V
				C27 C28 LC1 CN3 K1 SK1	NCB31CK-473X NDC31HJ-101X EXC-CET471U QGF0504C1-30X SCV2662-027 QNV0018-020	CER.CAPACITOR CER.CAPACITOR LC FILTER CONNECTOR FERRITE BEADS IC SOCKET	0.047 16V 100p 50V 30PIN K1,3,4 FOR IC1

6.3 ISG BOARD ASSEMBLY PARTS LIST 03 SCK2523-02-00A

6.4 ISR BOARD ASSEMBLY PARTS LIST 04 SCK2523-03-00A

3.3 ISG BOARD ASSEMBLY PARTS LIST 03 SCK2523-02-00A					R BOARD ASSE CK2523-03-00A	MBLY PARTS LIS	04
Symbol No.	Part No.	Part Name	Description	Symbo No.	Part No.	Part Name	Description
IC2 IC3 IC4 IC7	TC74HC04AF-X AD8011AR-X OPA655U-XE AD603AR-X	I.C.(M) I.C.(M) I.C.(M) I.C.(M)	TOSHIBA ANALOG DEVICES BURR BROWN ANALOG DEVICES	IC2 IC3 IC4 IC7	TC74HC04AF-X AD8011AR-X OPA655U-XE AD603AR-X	1.C.(M) 1.C.(M) 1.C.(M) 1.C.(M)	TOSHIBA ANALOG DEVICES BURR BROWN ANALOG DEVICES
Q1 Q2 Q3 Q4 Q6	2SA1226T2B 3SK157/4-6/-W 3SK157/4-6/-W 3SK157/4-6/-W 3SK157/4-6/-W	TRANSISTOR FET FET FET FET	NEC NEC NEC NEC NEC	Q1 Q2 Q3 Q4 Q6	2SA1226T2B 3SK157/4-6/-W 3SK157/4-6/-W 3SK157/4-6/-W 3SK157/4-6/-W	TRANSISTOR FET FET FET FET	NEC NEC NEC NEC NEC
D1	HSM198S-W	DIODE	HITACHI	D1	HSM198S-W	DIODE	нітасні
R1 R2 R3 R4 R5 R6 R7 R8 R9	NRSA63D-220X NRSA63D-332X NRSA63J-105X NRSA63J-100X NRSA63J-100X NRSA63J-100X NRSA63J-100X NRSA63J-100X NRSA63J-100X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	22 1/16W 3.3k 1/16W 1M 1/16W 3.3k 1/16W 10 1/16W 10 1/16W 10 1/16W 10 1/16W 10 1/16W	R1 R2 R3 R4 R5 R6 R7 R8	NRSA63D-220X NRSA63D-332X NRSA63J-105X NRSA63J-332X NRSA63J-100X NRSA63J-100X NRSA63J-100X NRSA63J-100X NRSA63J-100X NRSA63J-100X NRSA63D-221X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	22 1/16W 3.3k 1/16W 11M 1/16W 3.3k 1/16W 10 1/16W 10 1/16W 10 1/16W 10 1/16W 10 1/16W 220 1/16W
R13 R14 R15 R16 R18 R19 R20 R21 R22 R24 R25	NRSA63D-221X NRSA63D-224X NRSA63D-152X NRSA63D-471X NRSA63D-102X NRSA63D-181X NRSA63D-181X NRSA63D-101X NRSA63D-121X NRSA63D-122X NRSA63D-152X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	220 1/16W 220k 1/16W 1.5k 1/16W 470 1/16W 1k 1/16W 180 1/16W 100 1/16W 120 1/16W 1.2k 1/16W 1.5k 1/16W	R13 R14 R15 R16 R18 R19 R20 R21 R22 R24 R25	NRSA63D-224X NRSA63D-152X NRSA63D-152X NRSA63D-102X NRSA63D-101X NRSA63D-181X NRSA63D-181X NRSA63D-101X NRSA63D-101X NRSA63D-122X NRSA63D-222X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	220k 1/16W 1.5k 1/16W 390 1/16W 1k 1/16W 180 1/16W 100 1/16W 100 1/16W 1.2k 1/16W 2.2k 1/16W
R26 R27 R30 R33 R34 R35	NRSA63J-0R0X NRSA63J-105X NRSA63J-105X NRSA63D-220X NRSA63D-102X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	0 1/16W 1M 1/16W 1M 1/16W 22 1/16W 1k 1/16W 100 1/16W	R26 R27 R30 R33 R34 R35	NRSA63D-151X NRSA63J-105X NRSA63J-105X NRSA63D-220X NRSA63D-102X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	150 1/16W 1M 1/16W 1M 1/16W 22 1/16W 1k 1/16W 100 1/16W
C1 C2 C3 C6 C7 C8 C9 C10 C11	NBE21AM-106X NBE21AM-106X NBE21EM-105X NBE21EM-225X NBE41VM-335X NCB31EK-103X NCB31EK-103X NCB31EK-473X NDC31HJ-680X NBE21CM-225X	TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR	10 10V 10 10V 1 25V 2.2 16V 3.3 35V 0.01 25V 0.01 25V 0.047 16V 68p 50V 2.2 16V	C1 C2 C3 C6 C7 C8 C9 C10 C11	NBE21AM-106X NBE21AM-106X NBE21EM-105X NBE21CM-225X NBE41VM-335X NCB31EK-103X NCB31EK-103X NCB31CK-473X NDC31HJ-680X NBE21CM-225X	TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR	10 10V 10 10V 1 25V 2.2 16V 3.3 35V 0.01 25V 0.01 25V 0.047 16V 68p 50V 2.2 16V
C13 C14 C15 C16 C17 C19 C20 C22 C26 C27	NBE21CM-225X NDC31HJ-150X NDC31HJ-150X NBE21CM-225X NBE21CM-225X NBE21CM-225X NBE21CM-225X NBE21CM-225X NDC31HJ-820X NCB31CK-473X NCB31CK-473X	TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	2.2 16V 15p 50V 2.2 16V 2.2 16V 2.2 16V 2.2 16V 2.2 16V 2.2 16V 82p 50V 0.047 16V	C13 C14 C15 C16 C17 C19 C20 C22 C25 C26	NBE21CM-225X NBE21CM-225X NBE21CM-225X NDC31HJ-820X NDC31HJ-151X	TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	2.2 16V 15p 50V 15p 50V 2.2 16V 2.2 16V 2.2 16V 2.2 16V 82p 50V 150p 50V 0.047 16V
C28	NDC31HJ-101X	CER.CAPACITOR	100p 50V	C27 C28		CER.CAPACITOR CER.CAPACITOR	0.047 16V 100p 50V
LC1	EXC-CET471U	LC FILTER		LC1		LC FILTER	·
CN4	QGF0503F4-30X	CONNECTOR	30PIN	CNE		CONNECTOR	30PIN
K1	SCV2662-027	FERRITE BEADS	K1,3,4	K1	SCV2662-027	FERRITE BEADS	K1,3,4
SK1	QNV0018-020	IC SOCKET	FOR IC1	SK1	QNV0018-020	IC SOCKET	FOR IC1

6.5 CP BOARD ASSEMBLY PARTS LIST 05

SCK2585-01-N0A(U) SCK2526-01-P1A(E)

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Symbol No.	Part No.	Part Name	Description
IC1 IC2	MB90T678BPF TC74VHC373FT-X	I.C.(M) I.C.(M)	FUJITSU TOSHIBA
SK3	SCV2768-001X	IC SOCKET	FOR IC3
IC3	PLSC1238 PLSC1256	I.C.(M) I.C.(M)	M28F512-12C1 (E) M28F512-12C1 (U)
SK4	SCV2768-001X	IC SOCKET	FOR IC4
IC4 IC5 IC6 IC7 IC8 IC9 IC10 IC11 IC12	PLSC1234 P16V8Z-25-01 CY62256LL70SN-X UPD71055GB-10 UPD6453GT-101 NM93C86AEM8-X TA75S01F-X M62353GP-X MN12821-QR-X MC74HC367F-X	I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M)	MBM29F002T-70PD ADVANCED MICRO CYPRESS NEC NEC NATIONAL SEMICO TOSHIBA MITSUBISHI MATSUSHITA MOTOROLA
IC14 IC15 IC16 IC17 IC18 IC19 IC20 IC21 IC22 IC23	TC7W00FU-X TC4053BFT-X NJM2068M-D-X NJM2068M-D-X TC4W53FU-X TC4W53FU-X TC7SH04FU-X NJM4556AM-X TC7W08FU-X TC7W08FU-X	I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M)	TOSHIBA TOSHIBA JRC JRC TOSHIBA TOSHIBA TOSHIBA JRC TOSHIBA TOSHIBA TOSHIBA
Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10	DTC124EUA-X DTA124EUA-X DTA124EUA-X DTA124EUA-X 2SD2240/RST/-X DTC124EUA-X DTC124EUA-X DTC124EUA-X DTC124EUA-X 2SK662/QR/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM ROHM ROHM MATSUSHITA ROHM ROHM ROHM ROHM ROHM ROHM MATSUSHITA
Q11 Q12 Q13 Q14	2SD601A/QRS/-X 2SD601A/QRS/-X 2SB1463/RST/-X 2SD2240/RST/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	MATSUSHITA MATSUSHITA MATSUSHITA (U) MATSUSHITA (U)
D2 D3 D4 D5 D6 D7 D8 D9 D11 D12	MA143A-X MA143A-X MA142A-X MA142A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X	DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE	MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA
D13 D200	MA142A-X MA142A-X	DIODE DIODE	MATSUSHITA MATSUSHITA
LD1	GL3HS44	L.E.D.	SHARP
R1 R2 R3 R4 R5 R6 R7	NRSA63D-105X NRSA63D-102X NRSA63D-105X NRSA63D-274X NRSA63D-223X NRSA63D-223X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	1M 1/16W 1k 1/16W 1M 1/16W (U) 270k 1/16W (U) 22k 1/16W 22k 1/16W 22k 1/16W

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Symbol No.	Part No.	Part Name	Description
R8 R10 R11 R12 R13 R15 R16 R17 R18	NRSA63D-104X NRSA63D-223X NRSA63D-274X NRSA63D-473X NRSA63D-223X NRSA63D-622X NRSA63D-622X NRSA63D-622X NRSA63D-223X NRSA63D-332X NRSA63J-0R0X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100k 1/16W 22k 1/16W 270k 1/16W (U) 47k 1/16W (U) 22k 1/16W 6.2k 1/16W 6.2k 1/16W 22k 1/16W 3.3k 1/16W 0 1/16W
R20 R21 R22 R23 R24 R25 R26 R27 R28 R29	NRSA63D-101X NRSA63D-101X NRSA63D-103X NRSA63D-101X NRSA63D-101X NRSA63D-681X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100 1/16W 100 1/16W 10k 1/16W 100 1/16W 100 1/16W 680 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W
R30 R31 R32 R33 R34 R35 R36 R37 R38 R39	NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-473X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100 1/16W 100 1/16W 100 1/16W 100 1/16W 47k 1/16W (U) 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W
R40 R41 R42 R43 R44 R45 R46 R47 R48	NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-392X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100 1/16W 100 1/16W
R50 R51 R52 R53 R54 R55 R56 R57 R58 R59	NRSA63D-392X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-124X NRSA63D-334X NRSA63D-334X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	3.9k 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 120k 1/16W 330k 1/16W
R60 R61 R62 R63 R64 R65 R66 R67 R68 R69	NRSA63D-104X NRSA63D-223X NRSA63D-562X NRSA63D-103X NRSA63D-183X NRSA63J-0R0X NRSA63J-0R0X NRSA63D-223X NRSA63D-223X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100k 1/16W 22k 1/16W 5.6k 1/16W 10k 1/16W 18k 1/16W 0 1/16W 0 1/16W 22k 1/16W 22k 1/16W 22k 1/16W
R70 R71 R72 R73 R74 R75 R76 R77 R78	NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	22k 1/16W 22k 1/16W
R80 R81 R82	NRSA63D-223X NRSA63D-223X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	22k 1/16W 22k 1/16W 22k 1/16W

Symbol No.	Part No.	Part Name	Description
R83 R84 R85 R86	NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	22k 1/16W 22k 1/16W 22k 1/16W 22k 1/16W
R87 R88 R89 R90 R91	NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	22k 1/16W 22k 1/16W 22k 1/16W 22k 1/16W 22k 1/16W 47k 1/16W
R92 R93 R94 R95 R96 R97 R98 R99 R100 R101 R102	NRSA63D-473X NRSA63D-473X NRSA63D-471X NRSA63D-473X NRSA63D-473X NRSA63D-473X NRSA63D-473X NRSA63D-473X NRSA63D-103X NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	47k 1/16W 470 1/16W 47k 1/16W 47k 1/16W 47k 1/16W 47k 1/16W 47k 1/16W 47k 1/16W 10k 1/16W 10k 1/16W 10k 1/16W
R103 R104 R105 R106 R107 R108 R109 R110 R111 R111	NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA02J-682X NRSA02J-682X NRSA02J-682X NRSA02J-682X NRSA02J-682X NRSA02J-682X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 6.8k 1/10W 6.8k 1/10W 6.8k 1/10W 6.8k 1/10W 6.8k 1/10W 6.8k 1/10W
R113 R114 R115 R116 R117 R118 R119 R120 R121 R122	NRSA02J-682X NRSA02J-682X NRSA02J-682X NRSA63D-273X NRSA63D-104X NRSA63D-202X NRSA63D-473X NRSA63D-153X NRSA63J-0R0X NRSA63D-104X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	6.8k 1/10W 6.8k 1/10W 27k 1/16W 100k 1/16W 2k 1/16W 47k 1/16W 0 1/16W 0 1/16W 100k 1/16W
R123 R124 R125 R126 R127 R128 R129 R130 R131 R132	NRSA63D-473X NRSA63D-473X NRSA63D-223X NRSA63D-103X NRSA63D-103X NRSA63D-222X NRSA63D-104X NRSA63D-104X NRSA63D-103X NRSA63D-103X NRSA63D-392X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	47k 1/16W 47k 1/16W (E) 22k 1/16W 10k 1/16W 10k 1/16W 2.2k 1/16W 100k 1/16W 100k 1/16W 100k 1/16W 100k 1/16W 3.9k 1/16W
R133 R134 R135 R136 R137 R138 R139 R140 R141	NRSA63D-105X NRSA63D-104X NRSA63D-222X NRSA63D-222X NRSA63D-124X NRSA63D-124X NRSA63D-124X NRSA63D-270X NRSA63D-270X NRSA63D-122X NRSA63D-122X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	1M 1/16W 100k 1/16W 2.2k 1/16W 33k 1/16W 120k 1/16W 120k 1/16W 27 1/16W 27 1/16W 1.2k 1/16W 1.2k 1/16W
R143 R144 R145 R146 R147 R148 R149 R150 R151 R152	NRSA63D-270X NRSA63D-270X NRSA63D-103X NRSA63D-103X NRSA63D-220X NRSA63D-220X NRSA63D-220X NRSA63D-220X NRSA63D-220X NRSA63D-220X NRSA63D-220X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	27 1/16W 27 1/16W 10k 1/16W 10k 1/16W 22 1/16W 22 1/16W 22 1/16W 22 1/16W 22 1/16W 22 1/16W 22 1/16W 22 1/16W
R153 R154 R155	NRSA63D-153X NRSA63D-472X NRSA63D-750X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	15k 1/16W 4.7k 1/16W 75 1/16W

Symbol No.	Part No.	Part Name	Description
R156 R157 R158 R159 R160 R161 R162 R163 R164 R165	NRSA63D-680X NRSA63D-202X NRSA63D-472X NRSA63D-153X NRSA63D-153X NRSA63D-104X NRSA63D-101X NRSA63D-104X NRSA63D-104X NRSA63D-104X NRSA63D-104X NRSA63D-473X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	68 1/16W 2k 1/16W 4.7k 1/16W 15k 1/16W 15k 1/16W 100k 1/16W 100 1/16W 100k 1/16W 100k 1/16W 100k 1/16W 100k 1/16W
R166 R167 R170 R171	NRSA63D-473X NRSA63D-473X NRSA63D-560X NRSA63D-560X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	47k 1/16W (E 47k 1/16W 56 1/16W 56 1/16W
VR1 VR2 VR3 VR4 VR5 VR6	QVPB609-203Z QVPB609-203Z QVQ0162-A14 QVQ0162-A14 QVQ0162-A14 QVQ0162-A14	TRIM.RESISTOR TRIM.RESISTOR VAL.RESISTOR VAL.RESISTOR VAL.RESISTOR VAL.RESISTOR	20k H PHASE 20k SC FINE 10k MIC R LEV.L 10k MIC R LEV.R 10k MONITOR 10k ALARM
C1 C2 C3 C4 C6 C7 C8 C9 C10	NCB10JM-335X NEH90JM-107X NCB10JM-335X NEH91CM-476X NEH90JM-107X NEH91CM-476X NCB10JM-335X NCB10JM-335X NCB10JM-335X NCB10JM-335X	CER.CAPACITOR E.CAPACITOR E.CAPACITOR E.CAPACITOR E.CAPACITOR E.CAPACITOR E.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	3.3 6.3V 100 6.3V 3.3 6.3V 47 16V 100 6.3V 47 16V 3.3 6.3V 3.3 6.3V 0.047 16V 3.3 6.3V
C12 C13 C14 C15 C16 C17 C18 C19 C20 C21	NCB31CK-473X NCB10JM-335X NCB31CK-473X NCB10JM-335X NCB31CK-473X NCB10JM-335X NCB31CK-473X NCB10JM-335X NCB31CK-473X NCB31CK-473X NCB10JM-335X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	0.047 16V 3.3 6.3V 0.047 16V 3.3 6.3V 0.047 16V 3.3 6.3V 0.047 16V 3.3 6.3V 0.047 16V 3.3 6.3V 0.047 16V 3.3 6.3V
C22 C23 C24 C25 C26 C27 C28 C29 C30 C31	NDC31HJ-331X NCB10JM-335X NDC31HJ-101X NCB31CK-473X NCB31CK-473X NEH91HM-335X NEH91HM-335X NEH91HM-335X NCB31CK-333X NCB31CK-333X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR E.CAPACITOR E.CAPACITOR E.CAPACITOR E.CAPACITOR CER.CAPACITOR CER.CAPACITOR	330p 50V 3.3 6.3V 100p 50V 0.047 16V 0.047 16V 3.3 50V 3.3 50V 3.3 50V 0.033 16V 0.033 16V
C32 C33 C34 C35 C36 C37 C38 C39 C40	NCB10JM-335X NCB10JM-335X NDC21HJ-152X NEH91AM-336X NBE21CM-105X NDC31HJ-101X NCB11CK-105X NEH91AM-336X NCB10JM-335X NDC31HJ-331X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR E.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR E.CAPACITOR CER.CAPACITOR CER.CAPACITOR	3.3 6.3V 3.3 6.3V 1500p 50V 33 10V 1 16V 100p 50V 1 16V 33 10V 3.3 6.3V 330p 50V
C42 C43 C44 C45 C46 C47 C48 C49 C50 C51	NDC31HJ-101X NDC31HJ-101X NCB31CK-473X NCB31CK-473X NCB31CK-473X NCB90JM-107X NBE21AM-106X NCB10JM-335X NDC31HJ-221X NCB31CK-473X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR E.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	100p 50V 100p 50V 0.047 16V 0.047 16V 100 6.3V 10 10V 3.3 6.3V 220p 50V 0.047 16V

6.6 MAIN BOARD ASSEMBLY PARTS LIST 06

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SCK2534-U0A(U)	
SCK2534-E1A(E)	06

Symbol No.	Part No.	Part Name	Descrip	tion
C55 C60 L1 L2 L3 L4	NDC21HJ-152X NCB31CK-473X NQL054K-101X NQL054K-101X NQL114K-100X NQL114K-100X	CER.CAPACITOR CER.CAPACITOR COIL COIL COIL COIL	1500p 0.047 100uH 100uH 10uH 10uH	50V 16V
X1	NAX0061-001X	CRYSTAL	4MHz	
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10	SCV2595-008W QSW0233-001 NSW0070-002X NSW0070-002X NSW0070-002X NSW0010-001X NSW0010-001X NSW0010-001X NSW0010-001X NSW0010-001X	DIP SWITCH ROTARY SWICH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SWITCH SWITCH SWITCH SWITCH SWITCH SWITCH	SC COARSE SHUTTER IRIS BLACK FILE FULL AUTO LOLUX DOWN UP	
S11 S12 S13 S14	NSW0010-001X NSW0010-001X NSW0010-001X NSW0018-001X	SWITCH SWITCH SWITCH SLIDE SWITCH	ITEM SET MENU RS-232C/VTR	
CN1 CN6 CN8 CN16 CN21 CN26 CN27 CN28 CN29 CN30	QGA1201F2-04X QGA1201F2-11X QGA1201F2-12X QGA1201F2-15X QGA1201F2-10X QGA1201F2-07X QGA1201F2-04X QGA1201F2-04X QGA1201F2-03X QGA1201F2-02X QGF1012F1-10X	CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR	4PIN 11PIN 12PIN 15PIN 10PIN 7PIN 4PIN 3PIN 2PIN 10PIN	
CN31 CN32 CN50	QGA1201F2-09X QGF1012F1-24X QGA1201F2-06X	CONNECTOR CONNECTOR CONNECTOR	9PIN 24PIN 6PIN	(U)
TP1	NNZ0009-001X	TEST POINT	TP1-24	
K1 K8 K12 K13	SCV2662-027 NQR0265-001X NRSA63D-392X NQR0292-001X	FERRITE BEADS FERAITE BEAD M.G.RESISTOR FERAITE BEAD	K1-7 K8-11,19-24 R200 K13-18	(U)
TB1	PGZ02228	EARTH LUG	TB1-3	
SP1	SC43656-015	LED SPACER	FOR LD1	
PW1	SCK2571-01-N2A	AUDIO-SUB BOARD ASSEMBLY		(U)
CN101	QGA1201F2-06X	CONNECTOR	6PIN	(U)
		mbly SCK2585-01-N0A AUDIO-SUB board asso 3 and after		

	(2334-E IA(E)	,	
Symbol No.	Part No.	Part Name	Description
	11 (1 40000) (1) (1000	JRC
IC1	NJM2903V-X	I.C.(M)	
IC101	PLSC1236	I.C.(M)	UPD78P58YGC-3B9
IC102	SN74LV244APW-X	I.C.(M)	TEXAS
IC103	SN74CBT3253PW-X	I.C.(M)	TEXAS
IC104	SN74CBT3345PW-X	I.C.(M)	TEXAS
IC105	SN74CBT3345PW-X	I.C.(M)	TEXAS
IC106	TC74VHC174FT-X	I.C.(M)	TOSHIBA
IC107	TC74VHCT541AFTX	I.C.(M)	TOSHIBA
IC108	TC7W126FU-X	I.C.(M)	TOSHIBA
IC109	DS26C32ATM-X	I.C.(M)	NATIONAL SEMICO
1			
IC110	BU4094BCFV-X	I.C.(M)	ROHM
IC111	UPC4082G2-X	I.C.(M)	NEC
IC112	S-81240SGUP-X	I.C.(M)	SEIKO
IC201	JCL0029	I.C.(M)	JVC
IC202	DS90LV031TM-X	I.C.(M)	NATIONAL SEMICO
IC203	TC74VHCT541AFTX	I.C.(M)	TOSHIBA
IC204	TC7S66FU-X	I.C.(M)	TOSHIBA
IC205	S-81240SGUP-X	I.C.(M)	SEIKO
IC206	JCL0030	I.C.(M)	JVC
IC207	HM538254BTT-7	I.C.(M)	HITACHI
IC208	SN74CBT3345PW-X	I.C.(M)	TEXAS
IC209	SN74CBT3345PW-X	I.C.(M)	TEXAS
IC210	TC74VHCT541AFTX	I.C.(M)	TOSHIBA
IC211	TC74VHCT541AFTX	I.C.(M)	TOSHIBA
IC212	SN74CBT3345PW-X	I.C.(M)	TEXAS
IC213	SN74CBT3345PW-X	I.C.(M)	TEXAS
IC214	HM538254BTT-7	I.C.(M)	HITACHI
IC215	DS90LV032TM-X	I.C.(M)	NATIONAL SEMICO
IC216	L7A1433	I.C.(M)	LSI LOGIC
IC217	L7A1433	I.C.(M)	LSI LOGIC
IC218	MN673711	I.C.(M)	MATSUSHITA
IC219	MN673711	I.C.(M)	MATSUSHITA
IC220	UPD42S4260ALG5	I.C.(M)	NEC
IC221	UPD42S4260ALG5	I.C.(M)	NEC
IC222	S-81224SGUP-X	I.C.(M)	SEIKO
IC223	S-81224SGUP-X	I.C.(M)	SEIKO
IC224	JCL0028	I.C.(M)	JVC
IC225	UPD489001	I.C.(M)	NEC
IC226	UPD489001	I.C.(M)	NEC
IC227	UPD489001	I.C.(M)	NEC
IC228	UPD489001	1.C.(M)	NEC
IC229	SN74LV125APW-X	I.C.(M)	TEXAS
IC230	TC74VHC541FT-X	I.C.(M)	TOSHIBA
IC231	EPM032VT-15-002	I.C.(M)	ALTER
IC300	AD8011AR-X	I.C.(M)	ANALOG DEVICES
IC301	LMC6082IM-X	I.C.(M)	NATIONAL SEMICO
IC302	TDA8766G/C1	I.C.(M)	PHILIPS
IC303	AD8011AR-X	I.C.(M)	ANALOG DEVICES
IC304	TDA8766G/C1	I.C.(M)	PHILIPS
IC305	AD8011AR-X	I.C.(M)	ANALOG DEVICES
			NIATIONIAL CENTICO
IC306	LMC6082IM-X	I.C.(M)	NATIONAL SEMICO
IC307	TDA8766G/C1	I.C.(M)	PHILIPS
IC308	TC74VHC541FT-X	I.C.(M)	TOSHIBA
IC309	EPF10K20TC144-3	I.C.(M)	ALTER
IC310	EPF10K10TC144-4	I.C.(M)	ALTER
IC311	JCS0048	I.C.(M)	JVC
IC312	MN657021F	I.C.(M)	MATSUSHITA
IC313	TC4W53FU-X	I.C.(M)	TOSHIBA
IC314	TC4W53FU-X	I.C.(M)	TOSHIBA
IC315	S-81233SGUP-X	I.C.(M)	SEIKO
IC316	S-81233SGUP-X	I.C.(M)	SEIKO
IC400	OPA658U-XE	I.C.(IVI)	BURR BROWN
IC400	AD817AR-X	I.C.(M)	ANALOG DEVICES
1C401	AD817AR-X	I.C.(M)	ANALOG DEVICES
1C402	OPA658U-XE	I.C.(M)	BURR BROWN
IC403	TC7S08FU-X	I.C.(M)	TOSHIBA
IC404 IC405	NJM1496V-X	I.C.(M)	JRC
IC405	OPA658U-XE	I.C.(M)	BURR BROWN
1C406	TC7SU04FU-X	1.C.(M)	TOSHIBA (E)
IC407	NJM1496V-X	I.C.(M)	JRC (L)
10406	1401VI 1400V-A	1. O. (IVI)	5.10
IC409	AD8011AR-X	I.C.(M)	ANALOG DEVICES
IC410	AD8011AR-X	1.C.(M)	ANALOG DEVICES
IC411	AD8011AR-X	I.C.(M)	ANALOG DEVICES
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Symbol No.	Part No.	Part Name	Description	Symbol No.	Part No.	Pi
IC412	SN74LV08APW-X	I.C.(M)	TEXAS	Q419	MSC3930/B/-X	TRANSI
C413	TC4W53FU-X	I.C.(M)	TOSHIBA	Q420	2SA1532/BC/-X	TRANSI
IC413	AD817AR-X	I.C.(M)	ANALOG DEVICES	Q421	MSC3930/B/-X	TRANSI
IC415	TC7SU04FU-X	I.C.(M)	TOSHIBA (E)	Q422	2SJ364/QR/-X	FET
IC415	TC7SU04FU-X	I.C.(M)	TOSHIBA	Q423	2SA1532/BC/-X	TRANSI
IC416	TC4W53FU-X	I.C.(M)	TOSHIBA	Q424	3SK157/4-6/-W	FET
	1		NATIONAL SEMICO	Q425	2SA1532/BC/-X	TRANSI
IC418	LM1881M-X	I.C.(M)	INATIONAL SEIVICO	Q426	MSC3930/B/-X	TRANSI
10440	4D00414DV	1.0.04	ANALOG DEVICES	Q427	2SA1532/BC/-X	TRANSI
IC419	AD8011AR-X	I.C.(M) I.C.(M)	TOSHIBA	Q427	2341332/00/-	IIIANO
IC420	TC4W53FU-X		TOSHIBA	Q428	DTC124EUA-X	TRANS
IC421	TC7S14FU-X	I.C.(M)	NEC	Q420	DICIZ4LUA-X	IIIAINSI
IC422	UPC812G2-X	I.C.(M)	TOSHIBA			
C423	TC74HC4538AFS-X			D1	MA143A-X	DIODE
IC424	AD817AR-X	I.C.(M)	ANALOG DEVICES	D1 D2	MA111-X	DIODE
IC425	TC74VHC541FT-X	I.C.(M)	TOSHIBA	D3	MA142WK-X	DIODE
IC426	JCS0027	I.C.(M)	JVC	D4	MA142WA-X	DIODE
IC427	MB88341PFV-X	I.C.(M)	FUJITSU			DIODE
IC428	TC74VHC157FT-X	I.C.(M)	TOSHIBA	D5	MA143A-X	DIODE
			1,150	D101	DAN202U-X	
C429	UPC2384GA	I.C.(M)	NEC	D401	SVC341/L/-X	VARI CA
IC430	TC74VHC541FT-X	I.C.(M)	TOSHIBA	D402	MA143A-X	DIODE
IC431	TC4053BFT-X	I.C.(M)	TOSHIBA	D403	MA143A-X	DIODE
IC432	TC7SH86FU-X	I.C.(M)	TOSHIBA	D405	MA335-X	DIODE
IC433	TC7SU04FU-X	I.C.(M)	TOSHIBA			D:07-
IC434	TC7W04FU-X	I.C.(M)	TOSHIBA	D406	MA335-X	DIODE
IC435	MC74HC4046AF-X		MOTOROLA	D407	MA742-X	DIODE
IC436	LMC6082IM-X	I.C.(M)	NATIONAL SEMICO	1	1	
IC438	S-81250SGUP-X	I.C.(M)	SEIKO	1 .		
C440	TC7S08FU-X	I.C.(M)	TOSHIBA	R1	NRSA63D-103X	M.G.RE
			1	R2	NRSA63D-473X	M.G.RE
C700	M65401FP	I.C.(M)	MITSUBISHI	R3	NRSA63D-332X	M.G.RE
C701	M52660FP	I.C.(M)	MITSUBISHI	R4	NRSA63D-823X	M.G.RE
C702	M65401FP	I.C.(M)	MITSUBISHI	R5	NRSA63D-823X	M.G.RE
C703	AK4323VF-X	I.C.(M)	ASAHI KASEI	R6	NRSA63D-103X	M.G.RE
C704	SN74LV125APW-X	I.C.(M)	TEXAS	R7	NRSA63D-563X	M.G.RE
C705	SN74LV125APW-X	I.C.(M)	TEXAS	R8	NRSA63D-272X	M.G.RE
IC706	AK5340-VS	I.C.(M)	ASAHI KASEI	R9	NRSA63D-392X	M.G.RE
IC707	TC74VHCT541AFTX	1.C.(M)	TOSHIBA	R10	NRSA63D-392X	M.G.RE
IC708	M5278D05	I.C.(M)	MITSUBISHI			
1C709	TC4S30F-W	I.C.(M)	TOSHIBA	R11	NRSA63D-392X	M.G.RE
			1	R12	NRSA63D-392X	M.G.RE
C710	S-81224SGUP-X	I.C.(M)	SEIKO	R13	NRSA63D-333X	M.G.RE
C711	AK5340-VS	I.C.(M)	ASAHI KASEI	R14	NRSA63D-333X	M.G.RE
C712	PCM1710U/G/-XE	I.C.(M)	BURR BROWN	R15	NRSA63D-103X	M.G.RE
				R16	NRSA63D-101X	M.G.RE
			1	R17	NRSA63D-101X	M.G.RE
21	2SB1219/QR/-X	TRANSISTOR	MATSUSHITA	R18	NRSA63D-101X	M.G.RE
22	DTC144WUA-X	TRANSISTOR	ROHM	R19	NRSA63D-101X	M.G.RE
23	2SD1820/QR/-X	TRANSISTOR	MATSUSHITA	R20	NRSA63D-101X	M.G.RE
14	DTA124EUA-X	TRANSISTOR	ROHM			
25	2SB1219/QR/-X	TRANSISTOR	MATSUSHITA	R21	NRSA63D-101X	M.G.RE
6	DTC124EUA-X	TRANSISTOR	ROHM	R22	NRSA63D-101X	M.G.RE
101	XN4509-W	TRANSISTOR	MATSUSHITA	R23	NRSA63D-101X	M.G.RE
102	XN6435-X	TRANSISTOR	MATSUSHITA	R24	NRSA63D-101X	M.G.RE
2300	MSC3930/B/-X	TRANSISTOR	MOTOROLA	R25	NRSA63D-101X	M.G.RE
301	MSC3930/B/-X	TRANSISTOR	MOTOROLA	R26	NRSA63D-101X	M.G.RE
				R27	NRSA63D-101X	M.G.RE
2302	MSC3930/B/-X	TRANSISTOR	MOTOROLA	R28	NRSA63D-101X	M.G.RE
2303	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA	R29	NRSA63D-101X	M.G.RE
2304	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA	R30	NRSA63D-101X	M.G.RE
2305	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA	-		
Q401	2SK663/QR/-X	FET	MATSUSHITA	R31	NRSA63D-101X	M.G.RE
Q402	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA	R32	NRSA63J-0R0X	M.G.RE
Q403	MSC3930/B/-X	TRANSISTOR	MOTOROLA	R33	NRSA63J-100X	M.G.RE
Q404	MSC3930/B/-X	TRANSISTOR	MOTOROLA	R34	NRSA63D-561X	M.G.RE
Q405	DTC124EUA-X	TRANSISTOR	ROHM	R35	NRSA63D-222X	M.G.RE
Q406	DTC124EUA-X	TRANSISTOR	ROHM	R36	NRSA63D-221X	M.G.RE
00	J. J. LTLUA-A			R37	NRSA63D-222X	M.G.RE
Q408	3SK157/4-6/-W	FET	NEC	R38	NRSA63D-221X	M.G.RE
Q409	2SK663/QR/-X	FET	MATSUSHITA	R39	NRSA63D-222X	M.G.RE
Q410	MSC3930/B/-X	TRANSISTOR	MOTOROLA	R40	NRSA63D-221X	M.G.RE
Q411	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA	1		
Q412	MSC3930/B/-X	TRANSISTOR	MOTOROLA	R41	NRSA63J-0R0X	M.G.RE
Q413	2SJ364/QR/-X	FET	MATSUSHITA	R43	NRSA63J-105X	M.G.RE
2413	DTA124EUA-X	TRANSISTOR	ROHM (U)	R101	NRSA63D-102X	M.G.RE
2414 2415	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA	R101	NRSA63D-102X	M.G.RE
<u> ~</u> + 1 O	MSC3930/B/-X		MOTOROLA	R102	NRSA63D-471X	M.G.RE
		TRANSISTOR				
2416		TDANICICTOD	I MATCHICHITA I			
416	2SA1532/BC/-X	TRANSISTOR	MATSUSHITA	R104	NRSA63D-222X NRSA63D-822X	M.G.RE
Q416 Q417 Q418		TRANSISTOR	MATSUSHITA MATSUSHITA	R105 R109	NRSA63D-222X NRSA63D-822X NRSA63D-102X	M.G.RE

Symbol No.	Part No.	Part Name	Description
Q419 Q420 Q421 Q422 Q423 Q424 Q425 Q426 Q427	MSC3930/B/-X 2SA1532/BC/-X MSC3930/B/-X 2SJ364/QR/-X 2SA1532/BC/-X 3SK157/4-6/-W 2SA1532/BC/-X MSC3930/B/-X 2SA1532/BC/-X	TRANSISTOR TRANSISTOR TRANSISTOR FET TRANSISTOR FET TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	MOTOROLA MATSUSHITA MOTOROLA MATSUSHITA MATSUSHITA NEC MATSUSHITA MOTOROLA MATSUSHITA
Q428	DTC124EUA-X	TRANSISTOR	ROHM
D1 D2 D3 D4 D5 D101 D401 D402 D403 D405	MA143A-X MA111-X MA142WK-X MA142WA-X MA143A-X DAN202U-X SVC341/U-X MA143A-X MA143A-X MA335-X	DIODE DIODE DIODE DIODE DIODE VARI CAP DIODE DIODE DIODE DIODE DIODE	MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA ROHM SANYO MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA
D406 D407	MA335-X MA742-X	DIODE DIODE	MATSUSHITA MATSUSHITA
R1 R2 R3 R4 R5 R6 R7 R8 R9	NRSA63D-103X NRSA63D-473X NRSA63D-332X NRSA63D-823X NRSA63D-823X NRSA63D-103X NRSA63D-563X NRSA63D-563X NRSA63D-272X NRSA63D-392X NRSA63D-392X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	10k 1/16W 47k 1/16W 3.3k 1/16W 82k 1/16W 82k 1/16W 10k 1/16W 56k 1/16W 2.7k 1/16W 3.9k 1/16W 3.9k 1/16W
R11 R12 R13 R14 R15 R16 R17 R18 R19	NRSA63D-392X NRSA63D-392X NRSA63D-333X NRSA63D-103X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	3.9k 1/16W 3.9k 1/16W 33k 1/16W 33k 1/16W 106 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W 100 1/16W
R21 R22 R23 R24 R25 R26 R27 R28 R29 R30	NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100 1/16W 100 1/16W
R31 R32 R33 R34 R35 R36 R37 R38 R39 R40	NRSA63D-101X NRSA63J-0R0X NRSA63J-100X NRSA63D-561X NRSA63D-221X NRSA63D-221X NRSA63D-221X NRSA63D-221X NRSA63D-221X NRSA63D-221X NRSA63D-221X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100 1/16W 0 1/16W 10 1/16W 560 1/16W 2.2k 1/16W 220 1/16W 2.2c 1/16W 2.2c 1/16W 2.2c 1/16W 2.2c 1/16W 2.2c 1/16W 2.2c 1/16W 2.2c 1/16W
R41 R43 R101 R102 R103 R104 R105 R109	NRSA63J-0R0X NRSA63J-105X NRSA63D-102X NRSA63D-222X NRSA63D-471X NRSA63D-222X NRSA63D-822X NRSA63D-102X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	0 1/16W 1M 1/16W 1k 1/16W 2.2k 1/16W 470 1/16W 2.2k 1/16W 8.2k 1/16W 1k 1/16W

Symbol No.	Part No.	Part Name	Description
D110	NDCACOD 100V	M C DECICEOD	11. 1/1014/
R110	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R111	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
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R113	NRSA63D-121X	M.G.RESISTOR	120 1/16W
R114	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R124	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R125	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R128	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R132	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R133	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R134	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R135	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R136	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R138	NRSA63D-562X	M.G.RESISTOR	5.6k 1/16W
R139	NRSA63D-562X	M.G.RESISTOR	5.6k 1/16W
R140	NRSA63D-562X	M.G.RESISTOR	5.6k 1/16W
R141	NRSA63D-562X	M.G.RESISTOR	5.6k 1/16W
R142	NRSA63D-562X	M.G.RESISTOR	5.6k 1/16W
R143	NRSA63D-562X	M.G.RESISTOR	5.6k 1/16W
R144	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R201	NRSA63J-105X	M.G.RESISTOR	1M 1/16W
R202	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R206	NRSA63D-222X	M.G.RESISTOR	2.2k 1/16W
D007	NIDCAGOD 404V	M C DECICTOR	100 1/1014/
R207	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R208	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R209	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R210 R211	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R211	NRSA63D-101X	M.G.RESISTOR	100 1/16W
	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R213	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R214	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R215 R216	NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	100 1/16W 100 1/16W
nz io	INDSA03D-101X	W.G.NESISTON	100 1/1600
R217	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R218	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R219	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R224	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R225	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R226	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R227	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R228	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R229	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R230	NRSA63D-101X	M.G.RESISTOR	100 1/16W
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R231	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R232	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R233	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R234	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R235	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R236	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R237	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R239	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R241	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R242	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
	NIDOLOGO	A O BECOME	1
R243	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R244	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R245	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R246	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R247	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R248	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R249	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R250 R251	NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	100 1/16W 100 1/16W
R251	NRSA63D-101X NRSA63D-101X	M.G.RESISTOR	100 1/16W
11202	INTOAUSD-101A	W.G.NESISTON	1/10//
R253	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R253	NRSA63D-101X	M.G.RESISTOR	2.2k 1/16W
R255	NRSA63D-332X	M.G.RESISTOR	3.3k 1/16W
R256	NRSA63D-332A	M.G.RESISTOR	100 1/16W
R257	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R258	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R259	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R260	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R261	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R262	NRSA63D-101X	M.G.RESISTOR	100 1/16W
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Symbol	Part No.	Part Name	Description	_
No.				_
R263	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R266	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R267	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R270	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R271	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R272	NRSA63D-101X	M.G.RESISTOR	100 1/16W	/E)
R273	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W 100 1/16W	(=)
R274	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R275 R276	NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	100 1/16W	
N2/0	NRSA63D-101X	IVI.G.NESISTON	17100	
R277	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R278	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R279	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R280	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R281	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R282	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R288	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
R289	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
R290	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
R291	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
R300	NRSA63D-151X	M.G.RESISTOR	150 1/16W	
R301	NRSA63D-111X	M.G.RESISTOR	110 1/16W	
R302	NRSA63D-221X	M.G.RESISTOR	220 1/16W	
R303	NRSA63D-221X	M.G.RESISTOR	220 1/16W	
R304	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
R305	NRSA63D-162X	M.G.RESISTOR	1.6k 1/16W	
R306	NRSA63D-433X	M.G.RESISTOR	43k 1/16W	
R307	NRSA63D-392X	M.G.RESISTOR	3.9k 1/16W	
R308	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R309	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
D010	NDCAGOD 101V	M C BECICTOR	100 1/16W	
R310	NRSA63D-101X	M.G.RESISTOR	1k 1/16W	
R311	NRSA63D-102X	M.G.RESISTOR M.G.RESISTOR	10k 1/16W	
R312 R313	NRSA63D-103X NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
R314	NRSA63D-201X	M.G.RESISTOR	200 1/16W	
R315	NRSA63D-473X	M.G.RESISTOR	47k 1/16W	
R320	NRSA63D-151X	M.G.RESISTOR	150 1/16W	
R321	NRSA63D-111X	M.G.RESISTOR	110 1/16W	
R322	NRSA63D-221X	M.G.RESISTOR	220 1/16W	
R323	NRSA63D-221X	M.G.RESISTOR	220 1/16VV	
R324	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
R325	NRSA63D-162X	M.G.RESISTOR	1.6k 1/16W	
R326	NRSA63D-433X	M.G.RESISTOR	43k 1/16W	
R327	NRSA63D-392X	M.G.RESISTOR	3.9k 1/16W	
R328	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R329	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R330	NRSA63D-101X	M.G.RESISTOR	100 1/16W 1k 1/16W	
R331 R332	NRSA63D-102X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k 1/16VV	
R333	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
11000	14110/4000-100/	W.G.RESISTON	17,500	
R334	NRSA63D-201X	M.G.RESISTOR	200 1/16W	
R335	NRSA63D-473X	M.G.RESISTOR	47k 1/16VV	
R340	NRSA63D-151X	M.G.RESISTOR	150 1/16VV	
R341	NRSA63D-111X	M.G.RESISTOR	110 1/16VV	
R342	NRSA63D-221X	M.G.RESISTOR	220 1/16VV	
R343	NRSA63D-221X	M.G.RESISTOR	220 1/16VV	
R344	NRSA63D-103X	M.G.RESISTOR	10k 1/16VV	
R345	NRSA63D-162X	M.G.RESISTOR	1.6k 1/16VV	
R346	NRSA63D-433X	M.G.RESISTOR	43k 1/16 V V	
R347	NRSA63D-392X	M.G.RESISTOR	3.9k 1/16W	
Da	NDCAGE (TT)	14 0 DECIOTO-	41.	
R348	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R349	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R350	NRSA63D-101X	M.G.RESISTOR	100 1/16W 1k 1/16W	
R351	NRSA63D-102X	M.G.RESISTOR	1k 1/16W 10k 1/16W	
R352 R353	NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k 1/16VV	
R353		M.G.RESISTOR	200 1/16W	
R354 R355	NRSA63D-201X NRSA63J-0R0X	M.G.RESISTOR	0 1/16V	
R356	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W	
R357	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W	
	IOO OHOX		1,1000	
R358	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W	
	NIDCACOD 101V	M.G.RESISTOR	100 1/16W	
R359 R363	NRSA63D-101X NRSA63D-103X	M.G.RESISTOR	10k 1/16W	

Symbol No.	Part No.	Part Name	Description	
R365	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R366	NRSA63D-473X	M.G.RESISTOR	47k 1/16W	
			22k 1/16W	
R367	NRSA63D-223X	M.G.RESISTOR		
R368	NRSA63D-223X	M.G.RESISTOR	22k 1/16W	
R369	NRSA63D-223X	M.G.RESISTOR	22k 1/16W	
R370	NRSA63D-272X	M.G.RESISTOR	2.7k 1/16W	- 1
R371	NRSA63D-471X	M.G.RESISTOR	470 1/16W	
R372	NRSA63D-471X	M.G.RESISTOR	470 1/16W	
R373	NRSA63D-272X	M.G.RESISTOR	2.7k 1/16W	- 1
R374	NRSA63D-471X	M.G.RESISTOR	470 1/16W	
R375	NRSA63D-471X	M.G.RESISTOR	470 1/16W	- 1
R376	NRSA63D-391X	M.G.RESISTOR	390 1/16W	- 1
R377	NRSA63D-561X	M.G.RESISTOR	560 1/16W	
R378	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W	
R379	NRSA63D-512X	M.G.RESISTOR	5.1k 1/16W	- 1
R380	NRSA63D-101X	M.G.RESISTOR	100 1/16W	
R381	NRSA63D-391X	M.G.RESISTOR	390 1/16W	
R382	NRSA63D-221X	M.G.RESISTOR	220 1/16W	
R383	NRSA63D-392X	M.G.RESISTOR	3.9k 1/16W	- 1
R384	NRSA63D-391X	M.G.RESISTOR	390 1/16W	
R385	NRSA63D-391X	M.G.RESISTOR	220 1/16W	- 1
		M.G.RESISTOR	3.9k 1/16W	- 1
R386	NRSA63D-392X		390 1/16W	- [
R387	NRSA63D-391X	M.G.RESISTOR		I
R388	NRSA63D-221X	M.G.RESISTOR	220 1/16W	
R389	NRSA63D-392X	M.G.RESISTOR	3.9k 1/16W	
R390	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	- 1
R391	NRSA63D-102X	M.G.RESISTOR	1k	
R392	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	-
R393	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	- 1
R394	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	- 1
R395	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	- 1
R396	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	ı
R397	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
R398	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
R399	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	- 1
			430 1/16W	
R400 R401	NRSA63D-431X NRSA63D-681X	M.G.RESISTOR M.G.RESISTOR	680 1/16W	
D402	NDC A COD ECOV	M.G.RESISTOR	5.6k 1/16W	
R402	NRSA63D-562X		· ·	- 1
R403	NRSA63D-561X	M.G.RESISTOR	560 1/16W	- 1
R404	NRSA63D-271X	M.G.RESISTOR	270 1/16W	
R405	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	I
R406	NRSA63D-331X	M.G.RESISTOR	330 1/16W	
R407	NRSA63D-152X	M.G.RESISTOR	1.5k 1/16W	
R408	NRSA63D-104X	M.G.RESISTOR	100k 1/16W	
R409	NRSA63D-183X	M.G.RESISTOR	18k 1/16W	
R410	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W	- 1
R411	NRSA63D-392X	M.G.RESISTOR	3.9k 1/16W	
R412	NRSA63D-681X	M.G.RESISTOR	680 1/16W	ı
R413	NRSA63D-123X	M.G.RESISTOR	12k 1/16W (
1	NRSA63D-113X	M.G.RESISTOR	11k 1/16W	(E)
R414	NRSA63D-103X	M.G.RESISTOR	10k 1/16W	
	NRSA63D-912X	M.G.RESISTOR	9.1k 1/16W	
R415	NRSA63D-392X	M.G.RESISTOR	3.9k 1/16W	
R416	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R417	NRSA63D-471X	M.G.RESISTOR	470 1/16W	
R418	NRSA63D-471X	M.G.RESISTOR	4.7k 1/16W	
R419	1	M.G.RESISTOR	56k 1/16W	این
11419	NRSA63D-563X	M.G.RESISTOR	68k 1/16W	
R420	NRSA63D-683X			\ <i>L)</i>
R420 R421	NRSA63D-102X NRSA63D-331X	M.G.RESISTOR M.G.RESISTOR	1k 1/16W 330 1/16W	
R422	NRSA63D-303X	M.G.RESISTOR	30k 1/16W	и в
R423	NRSA63D-564X	M.G.RESISTOR	560k 1/16W	(U)
R424	NRSA63D-683X	M.G.RESISTOR	68k 1/16W	
R429	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R430	NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R431	NRSA63D-331X	M.G.RESISTOR	330 1/16W	
			3.3k 1/16W	
R432	NRSA63D-332X	M.G.RESISTOR		
R432 R433		M.G.RESISTOR	1k 1/16W	
R432 R433 R434	NRSA63D-332X NRSA63D-102X NRSA02J-750X	M.G.RESISTOR M.G.RESISTOR	1k 1/16W 75 1/10W	
R432 R433	NRSA63D-332X NRSA63D-102X	M.G.RESISTOR	1k 1/16W	
R432 R433 R434 R435	NRSA63D-332X NRSA63D-102X NRSA02J-750X NRSA63D-472X NRSA63D-102X	M.G.RESISTOR M.G.RESISTOR	1k 1/16W 75 1/10W	
R432 R433 R434 R435	NRSA63D-332X NRSA63D-102X NRSA02J-750X NRSA63D-472X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	1k 1/16W 75 1/10W 4.7k 1/16W	

Symbol No.	Part No.	Part Name	Description	
R441	NRSA63D-123X	M.G.RESISTOR	12k 1/	16W
R442	NRSA63D-152X	M.G.RESISTOR		16W
R443	NRSA63D-392X	M.G.RESISTOR		16W
R444	NRSA63D-183X	M.G.RESISTOR		16W
R445	NRSA63D-473X	M.G.RESISTOR		16W
R446	NRSA63D-102X	M.G.RESISTOR		16W
R447	NRSA63D-472X	M.G.RESISTOR		16W
R448	NRSA63D-271X	M.G.RESISTOR		16W
R449	NRSA63D-332X	M.G.RESISTOR		16W
R450	NRSA63D-104X	M.G.RESISTOR		16W
R451	NRSA63D-222X	M.G.RESISTOR		16W
R452	NRSA63D-222X	M.G.RESISTOR		16W
R453	NRSA63D-472X	M.G.RESISTOR		16W
R454	NRSA63D-331X	M.G.RESISTOR		16W
R455	NRSA63D-562X	M.G.RESISTOR		16W 16W
R456 R457	NRSA63D-222X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR		16W
R458	NRSA63D-752X	M.G.RESISTOR	7.5k 1/	16W (U)
11700	NRSA63D-432X	M.G.RESISTOR		16W (E)
R459	NRSA63D-822X	M.G.RESISTOR		16W
R460	NRSA63D-222X	M.G.RESISTOR	2.2k 1/	16W
R461	NRSA63D-333X	M.G.RESISTOR	33k 1/	16W
R462	NRSA63D-684X	M.G.RESISTOR		16W
R464	NRSA63D-152X	M.G.RESISTOR		16W
R465	NRSA63D-561X	M.G.RESISTOR		16W
R466	NRSA63D-272X	M.G.RESISTOR		16W
R467	NRSA63D-681X	M.G.RESISTOR		16W
R470	NRSA63D-221X	M.G.RESISTOR	220 1/	16W
R471	NRSA63J-0R0X	M.G.RESISTOR		16W 16W
R472	NRSA63D-182X	M.G.RESISTOR		16W
R480	NRSA63D-102X	M.G.RESISTOR		16W
R481 R482	NRSA63D-123X NRSA63D-152X	M.G.RESISTOR M.G.RESISTOR		16W
R483	NRSA63D-192X	M.G.RESISTOR		16W
R484	NRSA63D-183X	M.G.RESISTOR		16W
R485	NRSA63D-473X	M.G.RESISTOR		16W
R486	NRSA63D-102X	M.G.RESISTOR		16W
R487	NRSA63D-472X	M.G.RESISTOR		16W
R488	NRSA63D-223X	M.G.RESISTOR	22k 1/	16W
R489	NRSA63D-102X	M.G.RESISTOR	1k 1/	16W
R490	NRSA63D-102X	M.G.RESISTOR	1k 1/	16W
R491	NRSA63D-122X	M.G.RESISTOR		16W
R492	NRSA63D-472X	M.G.RESISTOR		′16W
R493	NRSA63D-181X	M.G.RESISTOR	1.00	/16W
R494	NRSA63D-272X	M.G.RESISTOR		/16W
R495	NRSA63D-222X	M.G.RESISTOR		/16W
R496	NRSA63D-271X	M.G.RESISTOR M.G.RESISTOR		/16W /16W
R497	NRSA63D-332X			
R498	NRSA63D-104X	M.G.RESISTOR		/16W
R499	NRSA63D-222X	M.G.RESISTOR		/16W /16W
R500	NRSA63D-222X	M.G.RESISTOR	1	/16W
R501	NRSA63D-472X	M.G.RESISTOR	1	/16W
R502	NRSA63D-331X	M.G.RESISTOR		/16W
R503	NRSA63D-562X	M.G.RESISTOR		/16W
R504	NRSA63D-222X	M.G.RESISTOR M.G.RESISTOR		/16W
R505 R506	NRSA63D-103X NRSA63D-562X	M.G.RESISTOR		/16W
R507	NRSA63D-223X	M.G.RESISTOR		/16W (E)
R508	NRSA63D-472X	M.G.RESISTOR	4.7k 1	/16W
R509	NRSA63D-222X	M.G.RESISTOR	2.2k 1	/16W
R510	NRSA63D-333X	M.G.RESISTOR		/16W
R511	NRSA63D-393X	M.G.RESISTOR	1001	/16W
R512	NRSA63D-393X	M.G.RESISTOR	10011	/16W
R513	NRSA63D-684X	M.G.RESISTOR	1000	/16W
R514	NRSA63D-752X	M.G.RESISTOR		/16W
R515	NRSA63D-122X	M.G.RESISTOR	· · · · · · · ·	/16W
R516	NRSA63D-561X	M.G.RESISTOR	1	/16W /16W
R517	NRSA63D-272X	M.G.RESISTOR		
R520	NRSA63D-221X	M.G.RESISTOR		/16W /16W
R521	NRSA63J-0R0X NRSA63D-182X	M.G.RESISTOR M.G.RESISTOR	•	/16W
R522 R526	NRSA63D-333X	M.G.RESISTOR		/16W (E)
R529	NRSA63D-223X	M.G.RESISTOR	Į O O IX	/16W
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Symbol No.	Part No.	Part Name	Description
R530	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R533	NR\$A63D-101X	M.G.RESISTOR	100 1/16W
R540	NRSA63D-821X	M.G.RESISTOR	820 1/16W
R541	NRSA63D-122X	M.G.RESISTOR	1.2k 1/16W
R542	NRSA63D-221X	M.G.RESISTOR	220 1/16W
R543	NRSA63D-122X	M.G.RESISTOR	1.2k 1/16W
R544	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R545	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R546	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R547	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R548	NRSA63D-183X	M.G.RESISTOR	18k 1/16W
R549	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R550	NRSA63D-152X	M.G.RESISTOR	1.5k 1/16W
R551	NRSA63D-122X	M.G.RESISTOR	1.2k 1/16W (U)
	NRSA63D-681X	M.G.RESISTOR	680 1/16W (E)
R552	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R553	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R554	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R555	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R557	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R558	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R559	NRSA63D-560X	M.G.RESISTOR	56 1/16W
R560	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R561	NRSA63D-273X	M.G.RESISTOR	27k 1/16W
R562	NRSA63D-332X	M.G.RESISTOR	3.3k 1/16W
R563	NRSA63D-101X	M.G.RESISTOR	100 1/16W
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R564	NRSA63D-822X	M.G.RESISTOR	8.2k 1/16W
R565	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R566	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R567	NRSA63D-562X	M.G.RESISTOR	5.6k 1/16W
R568	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R569	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R570	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R571	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R572	NRSA63D-394X	M.G.RESISTOR	390k 1/16W
R573	NRSA63D-564X	M.G.RESISTOR	560k 1/16W
R574	NRSA63D-333X	M,G.RESISTOR	33k 1/16W
R575	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R576	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R578	NRSA63D-221X	M.G.RESISTOR	220 1/16W
R579	NRSA63J-105X	M.G.RESISTOR	1M 1/16W
R581	NRSA63D-222X	M.G.RESISTOR	2.2k 1/16W
R582	NRSA63D-122X	M.G.RESISTOR	1.2k 1/16W
R583	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R584	NRSA63D-222X	M.G.RESISTOR	2.2k 1/16W
R585	NRSA63D-331X	M.G.RESISTOR	330 1/16W
R586	NRSA63D-682X	M.G.RESISTOR	6.8k 1/16W
R587	NRSA63D-684X	M.G.RESISTOR	680k 1/16W
R588	NRSA63D-272X	M.G.RESISTOR	2.7k 1/16W
R589	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R590	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R591	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R592	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R593	NRSA63D-103X	M.G.RESISTOR	1k 1/16W
R594	NRSA63D-102X NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R595	NRSA63D-472X NRSA63D-273X	M.G.RESISTOR	27k 1/16W
R596	NRSA63D-563X	M.G.RESISTOR	56k 1/16W
R597	NRSA63D-222X	M.G.RESISTOR	2.2k 1/16W
R598	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R599	NRSA63D-273X	M.G.RESISTOR	27k 1/16W
R600	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R601	NRSA63D-104X	M.G.RESISTOR	27k 1/16W
R602	NRSA63D-273X	M.G.RESISTOR	10k 1/16W
R603			
	NRSA63D-153X	M.G.RESISTOR	· · · · · · · · · · · · · · · · · · ·
R604 R605	NRSA63D-104X NRSA63D-153X	M.G.RESISTOR M.G.RESISTOR	100k 1/16W 15k 1/16W
R606	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R610	NRSA63D-104X	M.G.RESISTOR	10k 1/16W
R611	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R612			
R624	NRSA63D-103X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	10k 1/16W 100 1/16W
R625			
	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R626	NRSA63D-102X	M.G.RESISTOR	1k 1/16W

	Symbol No.	Part No.	Part Name	Description
	R629	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W (U)
	R630	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W (E)
	R631	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
	R632	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
	R633	NRSA63D-101X	M.G.RESISTOR	100 1/16W
1	R634	NRSA63D-101X	M.G.RESISTOR	100 1/16W
	R635	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
	R636	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W 10k 1/16W
	R638 R639	NRSA63D-103X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	100 1/16W
1	R640	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
١	R641	NRSA63D-563X	M.G.RESISTOR	56k 1/16W
ı	R642	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
1	R643	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
١	R644	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
-	R645	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
1	R646	NRSA63D-101X	M.G.RESISTOR	100 1/16W
1	R647	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
ı	R648	NRSA63D-101X	M.G.RESISTOR	100 1/16W
١	R649	NRSA63D-101X	M.G.RESISTOR	100 1/16W
١	R650	NRSA63D-101X	M.G.RESISTOR	100 1/16W 0 1/16W
١	R651 R654	NRSA63J-0R0X NRSA63J-0R0X	M.G.RESISTOR M.G.RESISTOR	0 1/16W 0 1/16W
ı	11004	MISAUSS-UNUX	WI.G.NESISTON	
	R655 R656	NRSA63J-100X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	10 1/16W 100 1/16W
I	R700	NRSA63D-101X NRSA63D-103X	M.G.RESISTOR	10k 1/16W
I	R701	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
I	R702	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
l	R703	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
١	R704	NRSA63D-222X	M.G.RESISTOR	2.2k 1/16W
١	R705	NRSA63D-681X	M.G.RESISTOR	680 1/16W
١	R706	NRSA63D-272X	M.G.RESISTOR	2.7k 1/16W
	R707	NRSA63D-561X	M.G.RESISTOR	560 1/16W
1	R708	NRSA63D-391X	M.G.RESISTOR	390 1/16W
1	R709	NRSA63D-823X	M.G.RESISTOR	82k 1/16W
1	R710	NRSA63D-333X	M.G.RESISTOR	33k 1/16W 150k 1/16W
ı	R711 R712	NRSA63D-154X NRSA63D-154X	M.G.RESISTOR M.G.RESISTOR	150k 1/16W
1	R713	NRSA63D-392X	M.G.RESISTOR	3.9k 1/16W
1	R714	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
١	R715	NRSA63D-101X	M.G.RESISTOR	100 1/16VV
١	R716	NRSA63D-101X	M.G.RESISTOR	100 1/16W
	R717	NRSA63D-101X	M.G.RESISTOR	100 1/16VV
ĺ	R720	NRSA63D-471X	M.G.RESISTOR	470 1/16W
1	R723	NRSA63D-331X	M.G.RESISTOR	330 1/16W
١	R724	NRSA63D-331X	M.G.RESISTOR	330 1/16W
١	R725	NRSA63D-331X	M.G.RESISTOR	330 1/16W 330 1/16W
1	R726	NRSA63D-331X NRSA63J-0R0X	M.G.RESISTOR M.G.RESISTOR	330 1/16W 0 1/16W
1	R727 R728	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
١	R731	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
١	R732	NRSA63D-471X	M.G.RESISTOR	470 1/16W
١	R733	NRSA63D-331X	M.G.RESISTOR	330 1/16W
	R734	NRSA63D-331X	M.G.RESISTOR	330 1/16W
١	R735	NRSA63D-331X	M.G.RESISTOR	330 1/16 W
١	R736	NRSA63D-331X	M.G.RESISTOR	330 1/16W
1	R737	NRSA63D-101X	M.G.RESISTOR	100 1/16W
١	R738	NRSA63D-101X	M.G.RESISTOR	100 1/16W
١	R739	NR\$A63D-101X	M.G.RESISTOR	100 1/16 W 100 1/16 W
١	R740 R741	NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	100 1/16VV
١	R741	NRSA63D-101X NRSA63D-101X	M.G.RESISTOR	100 1/16VV
	R745	NRSA63D-101X	M.G.RESISTOR	100 1/16W
	R746	NRSA63D-101X	M.G.RESISTOR	100 1/16 V V
-	R747	NRSA63D-101X	M.G.RESISTOR	100 1/16W
1	R748	NRSA63D-101X	M.G.RESISTOR	100 1/16 V V
-	R749	NRSA63D-101X	M.G.RESISTOR	100 1/16 V V
-	R750	NRSA63D-101X	M.G.RESISTOR	100 1/16W
١	R751	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
1	R753	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
١	R754	NRSA63D-103X	M.G.RESISTOR	10k 1/16VV 10k 1/16VV
-	R755 R756	NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k 1/16VV
1		11.10A00D-100A	W.S.FILOIOTOIT	1,100

Symbol No.	Part No.	Part Name		Description	Symbol No.	Part No.
R758	NRSA63D-101X	M.G.RESISTOR	100	1/16W	C220	NCB31CK-473X
R759	NRSA63D-101X	M.G.RESISTOR	100	1/16W	C221	NCB31CK-473X
R760	NRSA63D-101X	M.G.RESISTOR	100	1/16W	C222	NCB31CK-473X
R761	NRSA63D-101X	M.G.RESISTOR	10k	1/16W	C223	NCB31CK-473X
R772	NRSA63D-473X	M.G.RESISTOR	47k	1/16W	C224	NCB31CK-473X
R774	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W	C225	NCB31CK-473X
R775	NRSA63D-470X	M.G.RESISTOR	47	1/16W	C226	NCB31CK-473X
R776	NRSA63D-101X	M.G.RESISTOR	100	1/16W	C227	NCB31CK-473X
R777	NRSA63D-101X	M.G.RESISTOR	100	1/16W	C228	NCB31CK-473X
R778	NRSA63D-101X	M.G.RESISTOR	100	1/16W		
R779	NRSA63D-101X	M.G.RESISTOR	100	1/16W	C229 C232	NCB10JM-335X NCB10JM-335X
R780	NRSA63D-101X	M.G.RESISTOR	100	1/16W	C235	NCB10JM-335X
R781	NRSA63D-101X	M.G.RESISTOR	100	1/16W	C238	NCB11CK-105X
R782	NRSA63D-470X	M.G.RESISTOR	47	1/16W	C240	NCB10JM-335X
R784	NRSA63D-223X	M.G.RESISTOR	22k	1/16W	C241	NCB10JM-335X
R786	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W	C244	NCB11CK-105X
R787	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W	C246	NCB10JM-335X
11707	111071000 011071		-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	C247	NCB10JM-335X
VR400	NVP1415-102X	TRIM.RESISTOR	1k	Y	C250	NDC31HJ-680X
VR400	NVP1415-102X	TRIM.RESISTOR	5k	CHROMA	C251	NCB31CK-473X
					C252	NCB31CK-473X
					C253	NCB31CK-473X
C1	NEX21AM-106X	E.CAPACITOR	10	10V	C254	NCB31CK-473X
C2	NEX21AM-106X	E.CAPACITOR	10	10V	C255	NCB31CK-473X
C3	NEX21AM-106X	E.CAPACITOR	10	10V	C256	NCB10JM-335X
C4	NCB11EK-104X	CER.CAPACITOR	0.1	25V	C259	NCB31CK-473X
C5	NEX21AM-106X	E.CAPACITOR	10	10V	C300	NCB11CK-105X
C6	NCB11CK-105X	CER.CAPACITOR	1	16V	C301	NCB11CK-105X
C7	NCB11CK-105X	CER.CAPACITOR	1	16V	C302	NCB11CK-105X
C8	NCB11AK-225X	CER.CAPACITOR	2.2	10V		
C9	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	C303	NCB11CK-105X
C10	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	C304	NCB31CK-473X
					C305	NCB31CK-473X
C11	NBE71VM-106X	TAN.CAPACITOR	10	35V	C306	NCB31CK-473X
C12	NCB31HK-103X	CER, CAPACITOR	0.01	50V	C307	NCB31CK-473X
C13	NCB31HK-103X	CER.CAPACITOR	0.01	50V	C308	NCB11CK-105X
C14	NCB31HK-103X	CER.CAPACITOR	0.01	50V	C309	NCB11CK-105X
C15	NCB31HK-103X	CER.CAPACITOR	0.01	50V	C310	NCB11CK-105X
C16	NDC31HJ-1R0X	CER.CAPACITOR	1p	50V (E)	C311	NCB11CK-105X
C17	NDC31HJ-1R0X	CER.CAPACITOR	1p	50V (E)	C312	NCB11CK-105X
C101	NCB31CK-473X	CER.CAPACITOR	0.047	16V	0012	TOB TOK TOOK
C101	NDC31HJ-120X	CER.CAPACITOR	12p	50V	C313	NCB11CK-105X
C103	NCB31HK-103X	CER.CAPACITOR	0.01	50V	C314	NCB31CK-473X
			1		C315	NCB31CK-473X
C104	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C316	NCB31CK-473X
C105	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C317	NCB31CK-473X
C106	NDC31HJ-220X	CER.CAPACITOR	22p	50V	C318	NCB31CK-473X
C107	NDC31HJ-220X	CER.CAPACITOR	22p	50V	C319	NCB31CK-473X
C108	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C320	NCB11CK-105X
C109	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C321	NCB11CK-105X
C110	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C322	NCB11CK-105X
C111	NCB31CK-473X	CER.CAPACITOR	0.047	16V		NOD446W
C112	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C323	NCB11CK-105X
C113	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C324	NCB11CK-105X
	1				C325	NCB11CK-105X
C114	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C326	NCB31CK-473X
C115	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C327	NCB31CK-473X
C116	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C328	NCB31CK-473X
C117	NDC31HJ-471X	CER.CAPACITOR	470p	50V	C329	NCB31CK-473X
C118	NCB11CK-105X	CER.CAPACITOR	1	16V	C330	NCB31CK-473X
C120	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	C331	NCB31CK-473X
C122	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C332	NCB11CK-105X
C123	NCB31CK-473X	CER.CAPACITOR	0.047	16V		NODATON
C201	NDC31HJ-180X	CER.CAPACITOR	18p	50V	C333	NCB11CK-105X
C202	NDC31HJ-7R0X	CER.CAPACITOR	7p	50V	C334	NCB31CK-473X
0000	110001111111111111111111111111111111111	050 040401700	0.04	501/	C335	NCB10JM-335X
C203	NCB31HK-103X	CER.CAPACITOR	0.01	50V	C336	NCB10JM-335X
C204	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	C339	NCB10JM-335X
C205	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	C340	NCB10JM-335X
C207	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C344	NCB10JM-335X
C208	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C345	NCB10JM-335X
C209	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C348	NCB31CK-473X
C210	NCB11CK-105X	CER.CAPACITOR	1	16V	C349	NCB31CK-473X
C211	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V		
C214	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	C350	NCB11CK-105X
C218	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C351	NCB10JM-335X
0210			1		C352	NCB31CK-473X
C219	NCB31CK-473X	CER.CAPACITOR	0.047	16V	C353	NCB31CK-473X

Symbol No.	Part No.	Part Name	Description
C220	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C221	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C222	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C223	NCB31CK-473X	CER.CAPACITOR	0.047 16V
			2.12
C224	NCB31CK-473X	CER.CAPACITOR	
C225	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C226	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C227	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C228	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C229	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C232	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C235	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C238	NCB11CK-105X	CER.CAPACITOR	1 16V
C240	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C241	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C244	NCB11CK-105X	CER.CAPACITOR	1 16V
C246	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C247	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C250	NDC31HJ-680X	CER.CAPACITOR	68p 50V
C251	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C251	1		0.047 16V
C252	NCB31CK-473X	CER.CAPACITOR	1
C253	NCB31CK-473X	CER.CAPACITOR	
C254	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C255	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C256	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C259	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C300	NCB11CK-105X	CER.CAPACITOR	1 16V
C301	NCB11CK-105X	CER.CAPACITOR	1 16V
C302	NCB11CK-105X	CER.CAPACITOR	1 16V
C303	NCB11CK-105X	CER.CAPACITOR	1 16V
C304	NCB31CK-473X	CER.CAPACITOR	0.047 16V
	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C305	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C306			
C307	NCB31CK-473X	CER.CAPACITOR	
C308	NCB11CK-105X	CER.CAPACITOR	1 16V
C309	NCB11CK-105X	CER.CAPACITOR	1 16V
C310	NCB11CK-105X	CER.CAPACITOR	1 16V
C311	NCB11CK-105X	CER.CAPACITOR	1 . 16V
C312	NCB11CK-105X	CER.CAPACITOR	1 16V
C313	NCB11CK-105X	CER.CAPACITOR	1 16V
C314	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C315	NCB31CK-473X	CER.CAPACITOR	0.047 16V
		CER.CAPACITOR	0.047 16V
C316	NCB31CK-473X		1
C317	NCB31CK-473X	CER.CAPACITOR	
C318	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C319	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C320	NCB11CK-105X	CER.CAPACITOR	1 16V
C321	NCB11CK-105X	CER.CAPACITOR	1 16V
C322	NCB11CK-105X	CER.CAPACITOR	1 16V
C323	NCB11CK-105X	CER.CAPACITOR	1 16V
C324	NCB11CK-105X	CER.CAPACITOR	1 16V
C325	NCB11CK-105X	CER.CAPACITOR	1 16V
C326	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C327	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C328	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C329	NCB31CK-473X	CER.CAPACITOR	0.047 16V
		CER.CAPACITOR	0.047 16V
C330	NCB31CK-473X	CER.CAPACITOR	0.077
C331 C332	NCB31CK-473X NCB11CK-105X	CER.CAPACITOR	0.047 16V 1 16V
		CED CADACITOS	101/
C333 C334	NCB11CK-105X NCB31CK-473X	CER.CAPACITOR CER.CAPACITOR	1 16V 0.047 16V
			0.017
C335	NCB10JM-335X	CER.CAPACITOR	0.0
C336	NCB10JM-335X	CER.CAPACITOR	1
C339	NCB10JM-335X	CER.CAPACITOR	0.0
C340	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C344	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C345	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C348	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C349	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C350	NCB11CK-105X	CER.CAPACITOR	1 16V
C350	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V
C352	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C353	NCB31CK-473X	CER.CAPACITOR	0.047 16V
C353	1400010K-470X	OEII.OAI AOITOII	10.047

Symbol No.	Part No.	Part Name	Descript	tion
C354	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C355	NCB11CK-105X	CER.CAPACITOR	1	16V
C356	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C357	NCB11CK-105X	CER.CAPACITOR	1	16V
C358	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C359	NDC31HJ-220X	CER.CAPACITOR	22p	50V
C360	NDC31HJ-220X	CER.CAPACITOR	22p	50V
C361	NDC31HJ-220X	CER.CAPACITOR	22p	50V
C362	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C363	NBE51AM-476X	TAN.CAPACITOR	47	10V
C365	NEH90GM-227X	E.CAPACITOR	220	
C366	NEH90GM-227X	E.CAPACITOR	220	
C367	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C368	NDC31HJ-101X	CER.CAPACITOR	100p	50V
C400 C401	NCB31CK-473X NCB31CK-473X	CER.CAPACITOR CER.CAPACITOR	0.047 0.047	16V 16V
C402	NDC31HJ-680X	CER.CAPACITOR	68p	50V
C402 C403	NDC31HJ-180X	CER.CAPACITOR	18p	50V 50V
C405	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C405	NCB31CK-473X	CER.CAPACITOR	0.047	16V 16V
C408	NBE41CM-106X	TAN.CAPACITOR	10	16V
C409	NBE41CM-106X	TAN.CAPACITOR	10	16V
C410	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C411	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C412	NDC31HJ-220X	CER.CAPACITOR	22p	50V
C413	NDC31HJ-470X	CER.CAPACITOR	47p	50V
C414	NDC31HJ-470X	CER.CAPACITOR	47p	50V
C415	NBE21VM-224X	TAN.CAPACITOR	0.22	35V
C416	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C417	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C418	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C419 C420	NCB31CK-473X NCB31HK-103X	CER.CAPACITOR CER.CAPACITOR	0.047 0.01	16V 50V
C420 C421	NCB31FK-103X NCB31CK-473X	CER.CAPACITOR	0.047	16V
C421	NCB31CK-473X	CER.CAPACITOR	0.047	16V 16V
C423	NDC31HJ-220X	CER.CAPACITOR	22p	50V (U)
0	NDC31HJ-270X	CER.CAPACITOR	27p	50V (E)
C424	NDC31HJ-180X	CER.CAPACITOR	18p	50V (U)
	NDC31HJ-270X	CER.CAPACITOR	27p	50V (E)
C425	NDC31HJ-220X	CER.CAPACITOR	22p	50V
C426	NDC31HJ-470X	CER.CAPACITOR	47p	50V
C427	NDC31HJ-470X	CER.CAPACITOR	47p	50V (E)
C428	NBE21VM-224X	TAN.CAPACITOR	0.22	35V
C429	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C430	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C431 C432	NDC31HJ-6R0X NCB31HK-103X	CER.CAPACITOR CER.CAPACITOR	6p 0.01	50V (U) 50V
C433	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C 4 34	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C435	NCB31HK-103X	CER.CAPACITOR	0.01	50V 50V
C436	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C437	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C438	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C439	NDC31HJ-220X	CER.CAPACITOR	22p	50V (U)
_	NDC31HJ-150X	CER.CAPACITOR	15p	50V (E)
C440	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C441	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C442 C443	NCB31CK-473X NCB31CK-473X	CER.CAPACITOR CER.CAPACITOR	0.047 0.047	16V 16V
C444 C445	NCB31CK-473X NCB31CK-473X	CER.CAPACITOR CER.CAPACITOR	0.047 0.047	16V 16V
C446	NCB31CK-473X NCB31CK-473X	CER.CAPACITOR	0.047	16V 16V
C447	NDC31HJ-100X	CER.CAPACITOR	10p	50V
C448	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C449	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C450	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C451	NCB31HK-222X	CER.CAPACITOR	2200p	50V
C452 C453	NCB31HK-222X NCB11CK-105X	CER.CAPACITOR CER.CAPACITOR	2200p 1	50V 16V
045.		CER.CAPACITOR	0.01	50V
C454	NCB31HK-103X			
C454 C455 C460	NCB31HK-103X NCB31HK-103X NDC31HJ-270X	CER.CAPACITOR CER.CAPACITOR	0.01 27p	50V 50V (U)

Symbol					
No.	Part No.	Part Name	Desc	cription	
C461	NCB31EK-473X	CER,CAPACITOR	0.047	25V	
C462	NCB31EK-473X	CER.CAPACITOR	0.047	25V	
C463	NDC31HJ-560X	CER.CAPACITOR	56p	50V	
C464	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C465	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C466	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C467	NDC31HJ-151X	CER.CAPACITOR	150p	50V (
0.107	NDC31HJ-121X	CER.CAPACITOR	120p	50V (
C468	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C469	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C470	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C471	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C472	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C473	NDC31HJ-101X	CER.CAPACITOR	100p	50V (
C474	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C475	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C476	NCB11CK-105X	CER.CAPACITOR	1	16V	
C477	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C480	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C481	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C482	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C483	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C491	NBE21EM-474X	TAN.CAPACITOR	0.47	25V	
C492	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C493	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C494	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C495	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C496	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C498	NCB31CK-104X	CER.CAPACITOR	0.1	16V	
C499	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C501	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C502	NDC31HJ-330X	CER.CAPACITOR	33p	50V	
C503	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C504	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C505	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C700	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C701	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C702	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C703	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C704	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C705	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C706	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C707	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C709	NEX21AM-106X	E.CAPACITOR	10	10V	
C710	NEX21AM-106X	E.CAPACITOR	10	10V	
C711	NEX21CM-225X	E.CAPACITOR	2.2	16V	
C711	NEX21CM-225X	E.CAPACITOR	2.2	16V	
C713	NCB31CK-104X	CER.CAPACITOR	0.1	16V	
C714	NCB31HK-682X	CER.CAPACITOR	6800p	50V	
C715	NDC31HJ-180X	CER.CAPACITOR	18p	5 0 V	
C716	NCB31CK-104X	CER.CAPACITOR	0.1	1 6 V	
C717	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C718	NCB31HK-103X	CER.CAPACITOR	0.01	50V	
C719	NCB31HK-103X	CER.CAPACITOR	0.01	5 0 V	
C720	NCB31HK-103X	CER.CAPACITOR	0.01	50V	
C721	NCB11CK-105X	CER.CAPACITOR	1	16V	
C722	NDC31HJ-180X	CER.CAPACITOR	18p	50V	
C723	NDC31HJ-180X	CER.CAPACITOR	18p	50V	
C724	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C725	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C726	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C727	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C728	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C729	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C730	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C731	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C732	NCB31CK-473X	CER.CAPACITOR	0.047	16V	
C733	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C734	NCB31CK-104X	CER.CAPACITOR	0.1	16V	
C735	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V	
C736	NCB31CK-104X	CER.CAPACITOR	0.1	16V	
C737	NCB31CK-104X	CER.CAPACITOR	0.1	16V	

Symbol No.	Part No.	Part Name	Descript	ion
C739	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C740	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C741	NFV41HJ-152X	FILM CAPACITOR	1500p	50V
C742	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C743	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C744	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C744 C745	NCB31CK-104X	CER.CAPACITOR	0.1	16V
		CER.CAPACITOR	3.3	6.3V
C746	NCB10JM-335X			16V
C747	NCB31CK-104X	CER.CAPACITOR	0.1	
C748	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C749	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C750	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C751	NFV41HJ-152X	FILM CAPACITOR	1500p	50V
C752	NFV41HJ-152X	FILM CAPACITOR	1500p	50V
C753	NBE41CM-106X	TAN.CAPACITOR	10	16V
C754	NBE41CM-106X	TAN.CAPACITOR	10	16V
C755	NBE41CM-106X	TAN.CAPACITOR	10	16V
C756	NBE41CM-106X	TAN.CAPACITOR	10	16V
C757	NCB11CK-105X	CER.CAPACITOR	1	16V
C758	NCB11CK-105X	CER.CAPACITOR	1	16V
C758	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
		CER.CAPACITOR	1	16V
C760	NCB11CK-105X			16V
C762	NCB11CK-105X	CER.CAPACITOR		16V 16V
C764 C765	NCB11CK-105X NCB11CK-105X	CER.CAPACITOR CER.CAPACITOR	1	16V 16V
C767	NCB11CK-105X	CER.CAPACITOR	1	16V
C769	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C771	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C772	NFV41HJ-152X	FILM CAPACITOR	1500p	50V
C773	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C774	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C775	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C776	NCB31CK-104X	CER.CAPACITOR	0.1	16V
			0.1	16V
C777	NCB31CK-104X	CER.CAPACITOR	3.3	6.3V
C778	NCB10JM-335X	CER.CAPACITOR	3.3	
C779	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C780	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C781	NCB31CK-104X	CER.CAPACITOR	0.1	16V
				1
L101	NQL054K-470X	COIL	47uH	
L201	NQL054K-1R2X	COIL	1.2uH	
L202	NQL054K-1R2X	COIL	1.2uH	
L400	NQL054K-1120X	COIL	12uH	
	NQL054K-120X	COIL	3.3uH	
L700				
L701	NQL054K-101X	COIL	100uH	
L702	NQL054K-101X	COIL	100uH	
, _,	D0704	10511750	1.01.000.001	
LC1	PGZ01972Z	LC FILTER	LC1-202,301	
LC300	SCV2906-001X	LC FILTER		
LC400	NQR0234-001X	LC FILTER	LC400,401	
LC402	SCV2030-001W	LC FILTER		
LC403	SCV2031-001V	LC FILTER		
LC404	NQR0089-001X	LC FILTER		(U)
	NQR0090-001X	LC FILTER		(E)
LC405	NQR0122-001X	LC FILTER		
LC406	PGZ01972Z	LC FILTER	LC406-410	
LC700	SSV3036-12R3Y	LC FILTER	1	
LC701	PGZ01972Z	LC FILTER		
X101	QAX0328-001X	CRYSTAL	4.9MHz	
X201	QAX0031-001	CRYSTAL	49.5MHz	
X401	NAX0022-001X	CRYSTAL	14.31818MHz	(U)
/ - 01	NAX0022-001X	CRYSTAL	17.73447MHz	(E)
X402	QAX0496-001	CRYSTAL	54MHz	\ <u>-</u> /
A402	QAX0490-001	CHISTAL	34141112	
TH700	NAD0001-103X	THERMISTOR	10k	
111700	1400001-1000	THETHAIGION	100	
S201	NSW0022-002X	DIP SW		
	3522 3527			
CN1	QGA1201F2-06X	CONNECTOR	6PIN	

Symbol No.	Part No.	Part Name	Description
CN14	QGA1201F2-14X	CONNECTOR	14PIN
CN32	QGF1012F1-24X	CONNECTOR	24PIN
	QGF1012F1-18X	CONNECTOR	18PIN
CN43		CONNECTOR	14PIN
CN44	QGF1012F1-14X		
CN45	QGA1201F2-04X	CONNECTOR	4PIN
CN46	SCV2850-040X	CONNECTOR	40PIN
CN56	SSV2615-28	CONNECTOR	28PIN
CN58	QGA1201F2-03X	CONNECTOR	3PIN
CN59	QGA1201F2-03X	CONNECTOR	3PIN
			i
CN60	QGA1201F2-02X	CONNECTOR	2PIN
TP1	NNZ0009-001X	TEST POINT	TP1-403
EL 000	NODOGGG GG4	בו בוודכם	
FL300	NQR0206-001	FL FILTER	1
FL301	NQR0206-001	FL FILTER	
FL302	NQR0206-001	FL FILTER	
FL400	NQR0207-001	FL FILTER	
FL401	NQR0208-001	FL FILTER	
K1	SCV2662-027	FERRITE BEADS	K1-3,7,8
K4	NRSA02J-0R0X	M.G.RESISTOR	0 1/10W
K7	SCV2662-027	FERRITE BEADS	K7,8,200-701 (E)
		FERRATE BEADS	K9,11
K9	PGZ00354		
K200	SCV2662-027	FERRITE BEADS	K200-701 (U)
		EADTH TERMINAL	TD1.0
TB1	NNZ0006-001X	EARTH TERMINAL	TB1,2
SL1	SC32250-001	SHIELD PLATE	
			l
SP1	SSV1568-105	FELT SPACER	FOR X402
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6.7 SS/RFP BOARD ASSEMBLY PARTS LIST 07

SCK2538-00A 07					
Symbol No.	Part No.	Part Name	Description		
IC101	CLC452AJM5-X	I.C.(M)	NATIONAL SEMICO		
IC102	CLC452AJM5-X	I.C.(M)	NATIONAL SEMICO		
IC151	UPC29M05T-X	I.C.(M)	NEC		
IC152	MC33269DR2-3.3	I.C.(M)	MOTOROLA		
IC201	CLC452AJM5-X	I.C.(M)	NATIONAL SEMICO		
IC202	CLC452AJM5-X	I.C.(M)	NATIONAL SEMICO		
IC301	AN3740FAP	I.C.(M)	MATSUSHITA		
IC302	NJM2902M-X	I.C.(M)	JRC		
IC303	CLC450AJM5-X	I.C.(M)	NATIONAL SEMICO		
IC304	CLC450AJM5-X	I.C.(M)	NATIONAL SEMICO		
IC401	AN3740FAP	I.C.(M)	MATSUSHITA		
IC402	NJM2902M-X	1.C.(M)	JRC		
IC403	CLC450AJM5-X	I.C.(M)	NATIONAL SEMICO		
IC404	CLC450AJM5-X	I.C.(M)	NATIONAL SEMICO		
IC501	DS90LV032TM-X	I.C.(M)	NATIONAL SEMICO		
IC502	DS90LV031TM-X	I.C.(M)	NATIONAL SEMICO		
IC601	SC78148GF-026	I.C.(M)	NEC SEIVICO		
IC602	UPD71055GB-10	I.C.(M)	NEC		
IC603	PLSC1235	I.C.(M)	MBM29F002T-70PD		
SK603	SCV2768-001X	IC SOCKET	FOR IC603		
IC604	TC74VHC573FT-X	I.C.(M)	TOSHIBA		
IC605	SN74LV138APW-X	I.C.(M)	TEXAS		
IC606	NM24C02EM8-X	I.C.(M)	NATIONAL SEMICO		
IC607	TC7W126FU-X	I.C.(M)	TOSHIBA		
IC608	TC7W74FU-X	I.C.(M)	TOSHIBA		
IC609	TC7W74FU-X	I.C.(M)	TOSHIBA		
IC610	TC7SH04FU-X	I.C.(M)	TOSHIBA		
			TOSHIBA		
IC611	TA75W01FU-X	I.C.(M)			
IC612	TC4W53FU-X	I.C.(M)	TOSHIBA		
IC613	TC7SH86FU-X	I.C.(M)	TOSHIBA		
IC614	TA75S01F-X	I.C.(M)	TOSHIBA		
IC615	BA7043FS-X	I.C.(M)	ROHM		
IC616	TC4W53FU-X	I.C.(M)	TOSHIBA		
IC617	TC7S14FU-X	I.C.(M)	TOSHIBA		
IC618	M66312FP-W	I.C.(M)	MITSUBISHI		
IC619	TC7S14FU-X	I.C.(M)	TOSHIBA		
IC620	MN12821-QR-X	I.C.(M)	MATSUSHITA		
IC621	TC7S14FU-X	I.C.(M)	TOSHIBA		
IC622	TC7S14FU-X	I.C.(M)	TOSHIBA		
IC623	BA6285FP-X	I.C.(M)	ROHM		
IC624	TA75S01F-X	I.C.(M)	TOSHIBA		
IC625	TC7SH04FU-X	I.C.(M)	TOSHIBA		
IC801	TC4W66FU-X	I.C.(M)	TOSHIBA		
IC802	NJM2068V-X	I.C.(M)	JRC		
			1		
IC803	TA75S393F-W	I.C.(M)	TOSHIBA		
IC804	NJM2068V-X	I.C.(M)	JRC		
IC805	TA75W393FU-X	I.C.(M)	TOSHIBA		
IC806	TC7SH86FU-X	I.C.(M)	TOSHIBA		
IC807	TC7SH86FU-X	I.C.(M)	TOSHIBA		
IC808	TC7W74FU-X	I.C.(M)	TOSHIBA		
IC809	BA6862FS-X	I.C.(M)	ROHM		
IC810	TC4W66FU-X	I.C.(M)	TOSHIBA		
IC901	MB3782PF-X	I.C.(M)	FUJITSU		
IC902	TA75W01FU-X	1.C.(M)	TOSHIBA		
Q101	2SC3735/4-5/-X	TRANSISTOR	NEC		
Q151	2SC3735/4-5/-X 2SA1577/QR/-X		ROHM		
		TRANSISTOR	1 1		
Q152	DTC124EUA-X	TRANSISTOR	ROHM		
Q153	2SA1577/QR/-X	TRANSISTOR	ROHM		
	DTC124EUA-X	TRANSISTOR	ROHM		
Q154	1000070514.5114	TRANSISTOR	NEC		
Q154 Q201	2SC3735/4-5/-X		ROHM		
Q201		LTRANSISTOR			
Q201 Q301	2SA1577/QR/-X	TRANSISTOR	NEC		
Q201 Q301 Q302	2SA1577/QR/-X 2SC3735/4-5/-X	TRANSISTOR	NEC		
Q201 Q301 Q302 Q303	2SA1577/QR/-X 2SC3735/4-5/-X DTC124EUA-X	TRANSISTOR TRANSISTOR	ROHM		
Q201 Q301 Q302	2SA1577/QR/-X 2SC3735/4-5/-X	TRANSISTOR	1		
Q201 Q301 Q302 Q303 Q401	2SA1577/QR/-X 2SC3735/4-5/-X DTC124EUA-X 2SA1577/QR/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM NEC		
Q201 Q301 Q302 Q303 Q401 Q402 Q403	2SA1577/QR/-X 2SC3735/4-5/-X DTC124EUA-X 2SA1577/QR/-X 2SC3735/4-5/-X DTC124EUA-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM NEC ROHM		
Q201 Q301 Q302 Q303 Q401 Q402 Q403 Q601	2SA1577/QR/-X 2SC3735/4-5/-X DTC124EUA-X 2SA1577/QR/-X 2SC3735/4-5/-X DTC124EUA-X 2SB1073/PQ/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM NEC ROHM MATSUSHITA		
Q201 Q301 Q302 Q303 Q401 Q402 Q403	2SA1577/QR/-X 2SC3735/4-5/-X DTC124EUA-X 2SA1577/QR/-X 2SC3735/4-5/-X DTC124EUA-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM NEC ROHM		

Symbol	Part No.	Part Name	Description
No. Q604 Q605 Q606 Q607	DTC124EUA-X 2SC4081/QRS/-X DTA114EUA-X DTC124EUA-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM ROHM ROHM
Q608 Q609 Q611 Q612 Q801 Q802 Q803 Q804 Q805 Q806 Q807	2SC2873/Y/-X DTC124EUA-X DTC124EUA-X 2SC4097/QR/-X DTA114EUA-X 2SC4081/QRS/-X DTC124EUA-X 2SC4081/QRS/-X DTC124EUA-X 2SC4081/QRS/-X DTA114EUA-X 2SC4081/QRS/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	TOSHIBA ROHM ROHM ROHM ROHM ROHM ROHM ROHM ROH
Q808 Q809 Q810 Q811 Q901 Q902 Q903 Q904 Q905 Q906	2SC4081/QRS/-X 2SB1073/PQ/-X 2SB1073/PQ/-X 2SB1073/PQ/-X 2SJ2795-X 2SC4097/QR/-X 2SJ2795-X 2SC4097/QR/-X 2SC4097/QR/-X 2SA1577/QR/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR FET TRANSISTOR FET TRANSISTOR FET TRANSISTOR TRANSISTOR TRANSISTOR	ROHM MATSUSHITA MATSUSHITA MATSUSHITA HITACHI ROHM HITACHI ROHM HITACHI ROHM ROHM
Q907 Q908 Q909	2SJ279S-X 2SC4097/QR/-X 2SA1577/QR/-X	FET TRANSISTOR TRANSISTOR	HITACHI ROHM ROHM
D301 D401 D601 D602 D603 D604 D605 D606 D607 D608	DAN202U-X DAN202U-X DAN202U-X MA738-X DAN202U-X DAN202U-X DAN202U-X MA3120/M/-X MA3075/M/-X DAN202U-X	DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE ZENER DIODE ZENER DIODE DIODE	ROHM ROHM ROHM MATSUSHITA ROHM ROHM ROHM MATSUSHITA MATSUSHITA ROHM
D609 D801 D802 D803 D804 D805 D901 D902 D903 D904	DAN202U-X DAP202U-X MA3130/M/-X DAN202U-X MA3091/M/-X MA3020-X MA736-X MA736-X MA3056/M/-X MA736-X	DIODE DIODE ZENER DIODE DIODE ZENER DIODE ZENER DIODE DIODE DIODE DIODE DIODE DIODE DIODE	ROHM ROHM MATSUSHITA ROHM MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA
R101 R102 R103 R104 R105 R106 R107 R108 R109 R110	NRSA63D-121X NRSA63D-221X NRSA63D-222X NRSA63D-103X NRSA63D-103X NRSA63D-681X NRSA63D-681X NRSA63D-662X NRSA63D-102X NRSA63D-471X NRSA63D-471X NRSA63D-153X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	120 1/16W 220 1/16W 2.2k 1/16W 10k 1/16W 10k 1/16W 680 1/16W 5.6k 1/16W 1k 1/16W 470 1/16W 15k 1/16W
R111 R112 R113 R114 R115 R116 R117 R118 R119 R120	NRSA63D-682X NRSA63D-101X NRSA63D-152X NRSA63D-220X NRSA63D-220X NRSA63D-121X NRSA63D-121X NRSA63D-221X NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	6.8k 1/16W 100 1/16W 1.5k 1/16W 22 1/16W 82 1/16W 120 1/16W 220 1/16W 2.2k 1/16W 10k 1/16W
R121 R122	NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	100 1/16W 100 1/16W

[SS/RFP]

Symbol No.	Part No.	Part Name		Description	Symbol No.	Part No.	Part Name	D	escription
R123	NRSA63D-102X	M.G.RESISTOR	1k	1/16W	R361	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W
	NRSA63D-750X	M.G.RESISTOR	75	1/16W	R362	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R124					R363	NRSA63D-102X	M.G.RESISTOR	10k	1/16W
R125	NRSA63D-220X	M.G.RESISTOR	22	1/16W					
R151	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16W	R364	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R159	NRSA63D-562X	M.G.RESISTOR	5.6k	1/16W	R365	NRSA63D-391X	M.G.RESISTOR	390	1/16W
R163	NRSA63D-392X	M.G.RESISTOR	3.9k	1/16W				1	
			2.2k	1/16W	R370	NRSA63D-562X	M.G.RESISTOR	5.6k	1/16W
R165	NRSA63D-222X	M.G.RESISTOR						22k	1/16W
R201	NRSA63D-121X	M.G.RESISTOR	120	1/16W	R371	NRSA63D-223X	M.G.RESISTOR		
		1		1	R403	NRSA63J-100X	M.G.RESISTOR	10	1/16W
R202	NRSA63D-221X	M.G.RESISTOR	220	1/16W	R404	NRSA63D-471X	M.G.RESISTOR	470	1/16W
R203	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W	R405	NRSA63D-471X	M.G.RESISTOR	470	1/16W
				1/16W	R406	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W
R204	NRSA63D-103X	M.G.RESISTOR	10k						1/16W
R205	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R407	NRSA63D-223X	M.G.RESISTOR	22k	
R206	NRSA63D-681X	M.G.RESISTOR	680	1/16W	R408	NRSA63D-153X	M.G.RESISTOR	15k	1/16W
R207	NRSA63D-562X	M.G.RESISTOR	5.6k	1/16W	R409	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
		M.G.RESISTOR	1k	1/16W	R414	NRSA63D-221X	M.G.RESISTOR	220	1/16W
R208	NRSA63D-102X				11777	THIO AGOD ZZIA	171.0.1120101011		.,
R209	NRSA63D-471X	M.G.RESISTOR	470	1/16W			A C DECISION	100	1/10\A/
R210	NRSA63D-153X	M.G.RESISTOR	15k	1/16W	R415	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R211	NRSA63D-682X	M.G.RESISTOR	6.8k	1/16W	R416	NRSA63D-680X	M.G.RESISTOR	68	1/16W
			1		R418	NRSA63D-820X	M.G.RESISTOR	82	1/16W
5040	NIDO A COD A CAN	M C DECICTOR	100	1/16W	R419	NRSA63D-820X	M.G.RESISTOR	82	1/16W
R212	NRSA63D-101X	M.G.RESISTOR						10k	1/16W
R213	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16W	R420	NRSA63D-103X	M.G.RESISTOR		
R214	NRSA63D-220X	M.G.RESISTOR	22	1/16W	R422	NRSA63D-153X	M.G.RESISTOR	15k	1/16W
R215	NRSA63D-820X	M.G.RESISTOR	82	1/16W	R423	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16W
R216	NRSA63D-121X	M.G.RESISTOR	120	1/16W	R424	NRSA63D-121X	M.G.RESISTOR	120	1/16W
			220	1/16W	R425	NRSA63D-680X	M.G.RESISTOR	68	1/16W
R217	NRSA63D-221X	M.G.RESISTOR							
R218	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W	R428	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R219	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	Į.				
R220	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R431	NRSA63D-272X	M.G.RESISTOR	2.7k	1/16W
		M.G.RESISTOR	100	1/16W	R432	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W
R221	NRSA63D-101X	W.G.RESISTON	1100	171000	R433	NRSA63D-822X	M.G.RESISTOR	8.2k	1/16W
									1/16W
R222	NRSA63D-101X	M.G.RESISTOR	100	1/16W	R434	NRSA63D-332X	M.G.RESISTOR	3.3k	
R223	NRSA63D-102X	M.G.RESISTOR	1k	1/16W	R435	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R224	NRSA63D-750X	M.G.RESISTOR	75	1/16W	R436	NRSA63D-151X	M.G.RESISTOR	150	1/16W
		M.G.RESISTOR	22	1/16W	R437	NRSA63D-223X	M.G.RESISTOR	22k	1/16W
R225	NRSA63D-220X						M.G.RESISTOR	10k	1/16W
R303	NRSA63J-100X	M.G.RESISTOR	10	1/16W	R438	NRSA63D-103X			
R304	NRSA63D-471X	M.G.RESISTOR	470	1/16W	R439	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R305	NRSA63D-471X	M.G.RESISTOR	470	1/16W	R440	NRSA63D-223X	M.G.RESISTOR	22k	1/16W
R306	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W		1			
			22k	1/16W	R441	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R307	NRSA63D-223X	M.G.RESISTOR						10k	1/16W
R308	NRSA63D-153X	M.G.RESISTOR	15k	1/16W	R442	NRSA63D-103X	M.G.RESISTOR		
1				ı	R443	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R309	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R444	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W
R314	NRSA63D-221X	M.G.RESISTOR	220	1/16W	R445	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
			100	1/16W	R452	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R315	NRSA63D-101X	M.G.RESISTOR					M.G.RESISTOR	2.2k	1/16W
R316	NRSA63D-680X	M.G.RESISTOR	68	1/16W	R453	NRSA63D-222X			
R318	NRSA63D-820X	M.G.RESISTOR	82	1/16W	R455	NRSA63D-181X	M.G.RESISTOR	180	1/16W
R319	NRSA63D-820X	M.G.RESISTOR	82	1/16W	R456	NRSA63D-122X	M.G.RESISTOR	1.2k	1/16W
R320	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R457	NRSA63D-181X	M.G.RESISTOR	180	1/16W
			15k	1/16W					
R322	NRSA63D-153X	M.G.RESISTOR			5.50	1100 4 000 4 5414	MA O DECICEOD	150	1/16W
R323	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16W	R458	NRSA63D-151X	M.G.RESISTOR	150	
R324	NRSA63D-121X	M.G.RESISTOR	120	1/16W	R459	NRSA63D-151X	M.G.RESISTOR	150	1/16W
				İ	R460	NRSA63D-562X	M.G.RESISTOR	5.6k	1/16W
R325	NRSA63D-680X	M.G.RESISTOR	68	1/16W	R461	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W
			0	1/16W	R462	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R328	NRSA63J-0R0X	M.G.RESISTOR	1 -		t t				1/16W
R331	NRSA63D-272X	M.G.RESISTOR	2.7k	1/16W	R463	NRSA63D-103X	M.G.RESISTOR	10k	
R332	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W	R464	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R333	NRSA63D-822X	M.G.RESISTOR	8.2k	1/16W	R465	NRSA63D-391X	M.G.RESISTOR	390	1/16W
R334	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W	R470	NRSA63D-562X	M.G.RESISTOR	5.6k	1/16W
					1		M.G.RESISTOR	22k	1/16W
R335	NRSA63D-102X	M.G.RESISTOR	1k	1/16W	R471	NRSA63D-223X	IVI.Q.ITESISTOR	122	171044
R336	NRSA63D-151X	M.G.RESISTOR	150	1/16W					
R337	NRSA63D-223X	M.G.RESISTOR	22k	1/16W	R501	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R338	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R502	NRSA63D-820X	M.G.RESISTOR	82	1/16W
1	1.11.07.1000-1007		1.5.0	.,	R503	NRSA63J-0R0X	M.G.RESISTOR	o	1/16W
	ND04	N 0 05010505	1.0	4/4/0144				10k	1/16W
R339	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R507	NRSA63D-103X	M.G.RESISTOR		
R340	NRSA63D-223X	M.G.RESISTOR	22k	1/16W	R508	NRSA63D-123X	M.G.RESISTOR	12k	1/16W
R341	NRSA63D-102X	M.G.RESISTOR	1k	1/16W	R515	NRSA63D-562X	M.G.RESISTOR	5.6k	1/16W
R342	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R517	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
						NRSA63D-820X	M.G.RESISTOR	82	1/16W
R343	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R519				1/16W
	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W	R520	NRSA63D-820X	M.G.RESISTOR	82	
R344	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R521	NRSA63D-820X	M.G.RESISTOR	82	1/16W
		M.G.RESISTOR	10k	1/16W					
R345					DEOC	VIDEVESD BOOK	M.G.RESISTOR	82	1/16W
R345 R352	NRSA63D-103X	M.G.RESISTOR	2.2k	1/16W	R522	NRSA63D-820X			
R345 R352 R353	NRSA63D-222X		180	1/16W	R523	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R345 R352		M.G.RESISTOR	1	i	R525	NRSA63D-820X	M.G.RESISTOR	82	1/16W
R345 R352 R353	NRSA63D-222X								
R345 R352 R353 R355	NRSA63D-222X NRSA63D-181X	M.G.RESISTOR		1/16\\\			M.G.RESISTOR		1/16W
R345 R352 R353 R355	NRSA63D-222X NRSA63D-181X NRSA63D-122X	M.G.RESISTOR M.G.RESISTOR	1.2k	1/16W	R528	NRSA63D-820X	M.G.RESISTOR	82	
R345 R352 R353 R355 R356 R357	NRSA63D-222X NRSA63D-181X NRSA63D-122X NRSA63D-181X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	1.2k 180	1/16W	R528 R529	NRSA63D-820X NRSA63D-820X	M.G.RESISTOR	82 82	1/16W
R345 R352 R353 R355	NRSA63D-222X NRSA63D-181X NRSA63D-122X	M.G.RESISTOR M.G.RESISTOR	1.2k		R528	NRSA63D-820X	M.G.RESISTOR M.G.RESISTOR	82 82 1k	1/16W 1/16W
R345 R352 R353 R355 R356 R357 R358	NRSA63D-222X NRSA63D-181X NRSA63D-122X NRSA63D-181X NRSA63D-151X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	1.2k 180 150	1/16W 1/16W	R528 R529 R601	NRSA63D-820X NRSA63D-820X NRSA63D-102X	M.G.RESISTOR	82 82	1/16W
R345 R352 R353 R355 R356 R357	NRSA63D-222X NRSA63D-181X NRSA63D-122X NRSA63D-181X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	1.2k 180	1/16W	R528 R529	NRSA63D-820X NRSA63D-820X	M.G.RESISTOR M.G.RESISTOR	82 82 1k	1/16W 1/16W

Symbol No.	Part No.	Part Name	Description
NO.	·		
R604 R605	NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	100 1/16W 100 1/16W
R606	NRSA63J-100X	M.G.RESISTOR	10 1/16W
R607	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R608	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R609	NRSA63D-153X	M.G.RESISTOR	
R610	NRSA63D-393X	M.G.RESISTOR	39k 1/16W
R612	NRS12BJ-101X	M.G.RESISTOR	100 1/2W
R613	NRSA63D-471X	M.G.RESISTOR	470 1/16W
R614	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R615	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R616	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R617	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R618	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R619	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R620	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R621	NRSA63D-334X	M.G.RESISTOR	330k 1/16W
R622	NRSA63D-334X	M.G.RESISTOR	330k 1/16W
R623	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R624	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R625	NRSA63D-681X	M.G.RESISTOR	680 1/16W
R626	NRSA63D-821X	M.G.RESISTOR	820 1/16W
R627	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R628	NRSA63D-561X	M.G.RESISTOR	560 1/16W
R629	NRSA63D-561X	M.G.RESISTOR	560 1/16W
R630	NRSA63D-561X	M.G.RESISTOR	560 1/16W
R631	NRSA63D-561X	M.G.RESISTOR	560 1/16W
R632	NRSA63D-561X	M.G.RESISTOR	560 1/16W
R633	NRSA63D-681X	M.G.RESISTOR	680 1/16W
R634	NRSA63D-334X	M.G.RESISTOR	330k 1/16W
R635	NRSA63D-334X	M.G.RESISTOR	330k 1/16W
R636	NRSA63D-334X	M.G.RESISTOR	330k 1/16W
R637	NRSA63D-821X	M.G.RESISTOR	820 1/16W
R638	NRSA63D-334X	M.G.RESISTOR	330k 1/16W
R639	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R640	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R 64 1	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R642	NRSA63D-681X	M.G.RESISTOR	680 1/16W
R643	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R644	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R645	NRSA63D-271X	M.G.RESISTOR	270 1/16W
R646	NRSA63D-563X	M.G.RESISTOR	56k 1/16W
R647	NRSA63D-124X	M.G.RESISTOR	120k 1/16W
R648	NRSA63D-563X	M.G.RESISTOR	56k 1/16W
R649	NRSA63D-104X	M.G.RESISTOR	100k ' 1/16W
R650	NRSA63D-563X	M.G.RESISTOR	56k 1/16W
R652	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R653	NRSA63D-154X	M.G.RESISTOR	150k 1/16W
R654	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R655	NRSA63D-393X	M.G.RESISTOR	39k 1/16W
R656	NRSA63D-183X	M.G.RESISTOR	18k 1/16W
R657	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R658	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R659	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R660	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R661	NRSA63J-105X	M.G.RESISTOR	1M 1/16W
R662	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R663	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R664	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R665	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R666	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R667	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R668	NRSA63D-222X	M.G.RESISTOR	2.2k 1/16W
R669	NRSA63D-222X	M.G.RESISTOR	2.2k 1/16W
R670	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R671	NRSA63D-224X	M.G.RESISTOR	220k 1/16W
R672	NRSA63J-4R7X	M.G.RESISTOR	4.7 1/16W
R673	NRSA63D-123X	M.G.RESISTOR	12k 1/16W
R674	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R675	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R676	NRS12BJ-680X	M.G.RESISTOR	68 1/2W 4.7k 1/16W
R677	NRSA63D-472X	M.G.RESISTOR	7./K 1/10VV
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Symbol No.	Part No.	Part Name	Description
R678 R679 R680 R681 R682	NRSA63D-104X NRSA63D-223X NRSA63D-105X NRSA63D-472X NRSA63D-121X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100k 1/16W 22k 1/16W 1M 1/16W 4.7k 1/16W 120 1/16W 10k 1/16W
R683 R684 R685 R686 R687	NRSA63D-103X NRSA63D-104X NRSA63D-102X NRSA63D-103X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	100k 1/16W 11k 1/16W 10k 1/16W 22k 1/16W
R688 R689 R690 R693 R694 R695 R696 R697 R698 R699	NRSA63D-223X NRSA63D-104X NRSA63D-332X NRSA63D-101X NRSA63D-224X NRSA63D-472X NRSA63D-472X NRSA63D-681X NRSA63D-104X NRSA63D-333X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	22k 1/16W 100k 1/16W 3.3k 1/16W 100 1/16W 220k 1/16W 4.7k 1/16W 4.7k 1/16W 680 1/16W 100k 1/16W 33k 1/16W
R701 R702 R703 R704 R705 R706 R707 R801 R802 R803	NRSA63D-823X NRSA63D-223X NRSA63D-273X NRSA63D-473X NRSA63D-102X NRSA63D-102X NRSA63D-102X NRSA63D-681X NRSA63D-681X NRSA63D-561X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	82k 1/16W 22k 1/16W 27k 1/16W 47k 1/16W 1k 1/16W 220k 1/16W 1k 1/16W 680 1/16W 680 1/16W 560 1/16W
R804 R805 R806 R807 R808 R809 R810 R811 R812 R813	NRSA63D-332X NRSA63D-332X NRSA63D-564X NRSA63J-105X NRSA63D-222X NRSA63D-104X NRSA63D-472X NRSA63D-472X NRSA63D-222X NRSA63D-334X NRSA63D-332X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	3.3k 1/16W 3.3k 1/16W 560k 1/16W 1M 1/16W 2.2k 1/16W 1.00k 1/16W 4.7k 1/16W 2.2k 1/16W 3.3k 1/16W
R814 R815 R816 R817 R818 R819 R820 R821 R822 R823	NRSA63D-103X NRSA63D-103X NRSA63D-103X NRSA63D-103X NRSA63D-103X NRSA63D-103X NRSA63D-222X NRSA63D-222X NRSA63D-223X NRSA63D-223X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	10k 1/16W 10k 1/16W 10 1/16W 10k 1/16W 10k 1/16W 2.2k 1/16W 12k 1/16W 22k 1/16W 22k 1/16W
R824 R825 R826 R827 R828 R829 R830 R831 R832 R833	NRSA63D-222X NRSA63D-222X NRSA63D-562X NRSA63D-274X NRSA63D-223X NRSA63D-223X NRSA63D-105X NRSA63J-105X NRSA63D-103X NRSA63D-223X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	2.2k 1/16W 2.2k 1/16W 5.6k 1/16W 270k 1/16W 22k 1/16W 22k 1/16W 1M 1/16W 10k 1/16W 22k 1/16W 22k 1/16W
R834 R835 R836 R837 R838 R839 R840 R841 R842 R843	NRSA63D-222X NRSA63D-222X NRSA63D-562X NRSA63D-274X NRSA63D-223X NRSA63D-223X NRSA63D-103X NRSA63D-103X NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	2.2k 1/16W 2.2k 1/16W 5.6k 1/16W 270k 1/16W 22k 1/16W 22k 1/16W 1M 1/16W 10k 1/16W 82k 1/16W 10k 1/16W
R844 R845 R846	NRSA63D-222X NRSA63D-332X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	2.2k 1/16W 3.3k 1/16W 10k 1/16W

[SS/RFP]

	Symbol No.	Part No.	Part Name		Description		Symbol No.
	R847	NRSA63D-184X	M.G.RESISTOR	180k	1/16W		C101
ı	R848	NRSA63D-473X	M.G.RESISTOR	47k	1/16W		C102
			M.G.RESISTOR	10k	1/16W		C103
-	R849	NRSA63D-103X		10k	1/16W		C104
- 1	R850	NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k	1/16W		C105
- 1	R851	NRSA63D-103X			.,		C105
1	R852	NRSA63D-474X	M.G.RESISTOR	470k	1/16W		C108
	R853	NRSA63D-124X	M.G.RESISTOR	120k	1/16W		
				100	4/4/014/		C109
	R854	NRSA63D-104X	M.G.RESISTOR	100k	1/16W		C110
-	R855	NRSA63D-153X	M.G.RESISTOR	15k	1/16W	ı	C111
1	R856	NRS144J-1R0X	M.G.RESISTOR	1	1/4W	ļ	0440
1	R857	NRS144J-2R2X	M.G.RESISTOR	2.2	1/4W		C112
-	R858	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	- 1	C113
1	R859	NRSA63D-121X	M.G.RESISTOR	120	1/16W	- 1	C114
	R860	NRSA63D-121X	M.G.RESISTOR	120	1/16W		C115
	R861	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		C116
- 1	R901	NRSA63D-682X	M.G.RESISTOR	6.8k	1/16W		C117
	R902	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	- 1	C118
1							C123
- 1	R903	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	-	C151
	R906	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		C152
-	R907	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		
-	R908	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W		C153
1	R909	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		C154
	R910	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		C155
١	R911	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		C159
	R912	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W		C160
- 1	R913	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		C161
- 1	R914	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		C162
- 1	,,,,,,						C167
- 1	R915	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		C168
- 1	R916	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W		C169
- 1	R917	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		
ı	R918	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	-	C201
١	R919	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W	1	C202
	R920	NRSA63D-224X	M.G.RESISTOR	220k	1/16W		C203
- 1	R921	NRSA63D-223X	M.G.RESISTOR	22k	1/16W		C204
- 1	R923	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W		C205
- 1	R924	NRSA63D-471X	M.G.RESISTOR	470	1/16W		C206
	R925	NRSA63J-100X	M.G.RESISTOR	10	1/16W		C208
	11020	1111071000 10071	141.0.1120101011		,,,,,,,,,		C209
	R926	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		C210
	R927	NRSA63D-223X	M.G.RESISTOR	22k	1/16W		C211
	R928	NRSA63D-333X	M.G.RESISTOR	33k	1/16W		
	R929	NRSA63D-153X	M.G.RESISTOR	15k	1/16W		C212
	R930	NRSA63D-222X	M.G.RESISTOR	2.2k	1/16W		C213
	R931	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W		C214
	R932	NRSA63D-471X	M.G.RESISTOR	470	1/16W		C215
	R933	NRSA63J-100X	M.G.RESISTOR	10	1/16W		C216
Ì	R934	NRSA63D-223X	M.G.RESISTOR	22k	1/16W		C217
	R936	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W		C218
	.,,,,	111071000 00271		1			C223
	R937	NRSA63D-471X	M.G.RESISTOR	470	1/16W		C301
	R938	NRSA63J-100X	M.G.RESISTOR	10	1/16W		C302
	R939	NRSA63D-103X	M.G.RESISTOR	10k	1/16W		""
	11000	14110/4000-1007	IVI.Q.MEDIOTOM	100	1, 1011		C303
							C304
	VR101	NVP1415-501X	TRIM.RESISTOR	500	RF LEVEL		C305
	VR102	NVP1415-501X	TRIM.RESISTOR	500	RF LEVEL		C306
	VR201	NVP1415-501X	TRIM.RESISTOR	500	RF LEVEL		C307
	VR202	NVP1415-501X	TRIM.RESISTOR	500	RF LEVEL		C308
	VR305	NVP1415-103X	TRIM.RESISTOR	10k	VCO FRQ.		C309
		NVP1415-103X	TRIM.RESISTOR	10k	LATCH TIMING		C310
	VR307	NVP1415-103X	TRIM.RESISTOR	10k	SLICE LEVEL		C311
		NVP1415-103X	TRIM,RESISTOR	10k	ERR TIMING		C312
	VR309	NVP1415-103X	TRIM.RESISTOR	10k	PR-EQ PH		-
	VR310	NVP1415-103X	TRIM.RESISTOR	10k	PR-EQ AMP		C313
	111010	1441 1410-1007	THINKLINEOLOTOT	100	11124711111		C314
	VR311	NVP1415-202X	TRIM.RESISTOR	2k	LEVEL		C315
	VR312	NVP1415-201X	TRIM.RESISTOR	200	DIP		C316
	VR405	NVP1415-103X	TRIM.RESISTOR	10k	VCO FRQ.		C317
	VR406	NVP1415-103X	TRIM.RESISTOR	10k	LATCH TIMING		C318
	VR407	NVP1415-103X	TRIM.RESISTOR	10k	SLICE LEVEL		C319
	VR408	NVP1415-103X	TRIM.RESISTOR	10k	ERR TIMING		C320
	VR409	NVP1415-103X	TRIM.RESISTOR	10k	PR-EQ PH		C321
	VR410	NVP1415-103X	TRIM.RESISTOR	10k	PR-EQ AMP		C322
	VR411	NVP1415-202X	TRIM.RESISTOR	2k	LEVEL		1
	VR412	NVP1415-202X	TRIM.RESISTOR	200	DIP		C323
	''''	1713-2017	THINN.TIEGIGTON	1230	Dii		C325
			,				C326

Symbol No.	Part No.	Part Name	Description	
C101	NCB31CK-473X	CER.CAPACITOR	0.047 16V	
C102	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C103	NDC31HJ-390X	CER.CAPACITOR	39p 50V	
C104	NCB31CK-473X	CER.CAPACITOR	0.047 16V	
C105	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C106	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C108	NDC31HJ-220X	CER.CAPACITOR	22p 50V	
C109	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C110	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C111	NBE41CM-106X	TAN.CAPACITOR	10 16V	
C112	NDC31HJ-3R0X	CER.CAPACITOR	3p 50V	
C113	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C114	NDC31HJ-220X	CER.CAPACITOR	22p 50V	
C115	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C116	NCB31CK-104X	CER.CAPACITOR	0.1 16V 0.1 16V	
C117	NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	0.1 16V 0.047 16V	
C118 C123	NCB31CK-473X NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C123	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C152	NEH91CM-476X	E.CAPACITOR	47 16V	
C153	NBE51CM-226X	TAN.CAPACITOR	22 16V	
C153	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C155	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C159	NEH91CM-476X	E.CAPACITOR	47 16V	
C160	NEH90JM-226X	E.CAPACITOR	22 6.3V	
C161	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C162	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C167	NEH91EM-336X	E.CAPACITOR	33 25V	
C168	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C169	NDC31HJ-101X	CER.CAPACITOR	100p 50V	
C201	NCB31CK-473X	CER.CAPACITOR	0.047 16V	
C202	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C203	NDC31HJ-390X	CER.CAPACITOR	39p 50V	
C204	NCB31CK-473X	CER.CAPACITOR	0.047 16V	
C205	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C206	NCB31CK-104X	CER.CAPACITOR	0.1 16V 22p 50V	
C208	NDC31HJ-220X	CER.CAPACITOR	22p 50V 0.01 50V	
C209 C210	NCB31HK-103X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	0.1 16V	
C210	NBE41CM-106X	TAN.CAPACITOR	10 16V	
C212	NDC31HJ-3R0X	CER.CAPACITOR	3p 50V	
C212	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C214	NDC31HJ-220X	CER.CAPACITOR	22p 50V	
C215	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C216	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C217	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C218	NCB31CK-473X	CER.CAPACITOR	0.047 16V	
C223	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C301 C302	NCB31HK-103X NCB31CK-104X	CER.CAPACITOR	0.01 50V 0.1 16V	
C303 C304	NCB31CK-104X NCB31HK-103X	CER.CAPACITOR CER.CAPACITOR	0.1 16V 0.01 50V	
C304 C305	NCB31HK-103X	CER.CAPACITOR	1000p 50V	
C305	NCB31HK-102X	CER.CAPACITOR	1000p 50V	
C300	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C308	NCB31HK-102X	CER.CAPACITOR	1000p 50V	
C309	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C310	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C311	NBE21AM-106X	TAN.CAPACITOR	10 10V	
C312	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C313	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C314	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C315	NDC31HJ-331X	CER.CAPACITOR	330p 50V 0.1 16V	
C316	NCB31CK-104X	CER.CAPACITOR	0.1 16V 0.1 16V	
C317 C318	NCB31CK-104X NCB31HK-152X	CER.CAPACITOR	1500p 50V	
C318	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C320	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C321	NBE21AM-106X	TAN.CAPACITOR	10 10V	
C322	NCB31HK-103X	CER.CAPACITOR	0.01 50V	
C323	NCB31CK-473X	CER.CAPACITOR	0.047 16V	
C325	NCB31CK-473X	CER.CAPACITOR	0.047 16V	
C326	NCB31CK-473X	CER.CAPACITOR	0.047 16V	

Symbol No.	Part No.	Part Name	Descri	otion
C327	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C327	NDC31HJ-391X	CER.CAPACITOR		50V 50V
			390p	
C329	NDC31HJ-471X	CER.CAPACITOR	470p	50V
C330	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C331	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C332	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C333	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C334	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C335	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C336	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C337	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C338	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C340	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C341	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C342	NBE41CM-106X	TAN.CAPACITOR	10	16V
C343	NBE21AM-106X	TAN.CAPACITOR	10	10V
C344	NCB11AK-225X	CER.CAPACITOR	2.2	10V
00.45	NODALI II LAGO	055 04540 705		=0.4
C345 C347	NCB31HK-103X NBE21AM-106X	CER.CAPACITOR TAN.CAPACITOR	0.01	50V 10V
C347		TAN.CAPACITOR	10	
	NBE21AM-106X			10V
C349	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C350	NBE21AM-106X	TAN.CAPACITOR	10	10V
C351	NBE41CM-106X	TAN.CAPACITOR	10	16V
C401	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C402	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C403	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C404	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C405	NCB31HK-102X	CER.CAPACITOR	1000p	50V
C406	NCB31HK-102X	CER.CAPACITOR	1000p	50V
C407	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C408	NCB31HK-102X	CER.CAPACITOR	1000p	50V
C409	NCB31HK-102X	CER.CAPACITOR	0.01	50V
C403	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C410	NBE21AM-106X	TAN.CAPACITOR	10	10V
C411	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C412 C413	NCB31CK-104X	CER.CAPACITOR	0.01	16V
C413	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C415	NDC31HJ-331X	CER.CAPACITOR	330p	50V
C416	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C417	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C418	NCB31HK-152X	CER.CAPACITOR	1500p	50V
C419	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C420	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C421	NBE21AM-106X	TAN.CAPACITOR	10	10V
C422	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C423	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C425	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C426	NCB31CK-473X	CER.CAPACITOR	0.047	16V
C427	NCB31HK-103X	CER.CAPACITOR	0.047	50V
C427	NDC31HJ-391X	CER.CAPACITOR	390p	50V 50V
C429	NDC31HJ-471X	CER.CAPACITOR	470p	50V 50V
C429 C430	NCB31HK-103X	CER.CAPACITOR	0.01	50V 50V
C430	NCB31RK-103X	CER.CAPACITOR	0.01	16V
C432	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C433	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C434 C435	NCB31HK-103X NCB31HK-103X	CER.CAPACITOR CER.CAPACITOR	0.01 0.01	50V 50V
O 100	1,000 11111-1007	SERIORI ACTION	0.01	55 V
C436	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C437	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C438	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C440	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C441	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C442	NBE41CM-106X	TAN.CAPACITOR	10	16V
C443	NBE21AM-106X	TAN.CAPACITOR	10	10V
C444	NCB11AK-225X	CER.CAPACITOR	2.2	10V
C445	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C447	NBE21AM-106X	TAN.CAPACITOR	10	10V
C440	NIDEOLANA ACCY	TAN CADACITOR	10	4017
C448	NBE21AM-106X	TAN.CAPACITOR	10	10V
C449	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C450	NBE21AM-106X	TAN.CAPACITOR	10	10V
		TAN.CAPACITOR	10	16V
C451	NBE41CM-106X			
	NCB31CK-104X NCB31HK-103X	CER.CAPACITOR CER.CAPACITOR	0.1 0.01	16V 50V

Symbol No.	Part No.	Part Name	Desc	ription
C506	NBE41CM-106X	TAN.CAPACITOR	10	16V
C509 C510	NBE41CM-106X NCB31HK-103X	TAN.CAPACITOR	10 0.01	16V 50V
C510	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C512	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C513 C516	NCB31HK-103X NDC31HJ-3R0X	CER.CAPACITOR CER.CAPACITOR	0.01 3p	50V 50V
C510	NDC31HJ-3R0X	CER.CAPACITOR	3p	50V
C518	NDC31HJ-3R0X	CER.CAPACITOR	3p	50V
C519 C601	NDC31HJ-3R0X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	3p 0.1	50V 16V
C602	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C603	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C604	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C605	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C606 C607	NCB31CK-104X NCB31HK-102X	CER.CAPACITOR CER.CAPACITOR	0.1 1000p	16∨ 50∨
C608	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C609	NCB31HK-102X	CER.CAPACITOR	1000p	50V
C610 C611	NDC31HJ-8R0X NCB31HK-103X	CER.CAPACITOR CER.CAPACITOR	8p 0.01	50V 50V
C612	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C613	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C614	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C615	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C616 C617	NCB31CK-104X NCB31HK-472X	CER.CAPACITOR CER.CAPACITOR	0.1 4700p	16V 50V
C618	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C619	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C620 C621	NCB31HK-472X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	4700p 0.1	50V 16V
C622	NEH91CM-476X	E.CAPACITOR	47	16V
C623	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C624	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C625 C626	NEH91EM-475X NCB31CK-104X	E.CAPACITOR CER.CAPACITOR	4.7 0.1	25V 16V
C627	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C629	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C654 C655	NCB31CK-104X NFV41HJ-563X	CER.CAPACITOR FILM CAPACITOR	0.1 0.056	16V 50V
C656	NDC31HJ-561X	CER.CAPACITOR	560p	50V
C657	NFV41HJ-823X	FILM CAPACITOR	0.082	50V
C658 C659	NCB31HK-392X NEH91CM-106X	CER.CAPACITOR E.CAPACITOR	3900p 10	50V 16V
C660	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C661	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C662 C663	NCB31CK-104X NCB31CK-473X	CER.CAPACITOR CER.CAPACITOR	0.1	16V 16V
C664	NCB31HK-102X	CER.CAPACITOR	1000p	5 0 V
C665	NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	0.1	16V 16V
C666 C667	NCB31CK-104X NCB31CK-104X	CER.CAPACITOR	0.1	16V 16V
C668	NCB31CK-823X	CER.CAPACITOR	0.082	1 6 V
C669	NCB11CK-105X	CER.CAPACITOR	1	16V
C670	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C671 C672	NDC31HJ-470X NDC31HJ-270X	CER.CAPACITOR CER.CAPACITOR	47p 27p	50∨ 50∨
C673	NCB31CK-473X	CER.CAPACITOR	0.047	1 6 V
C674	NCB31CK-473X	CER.CAPACITOR	0.047	16V 16V
C675 C676	NCB31CK-473X NCB31CK-273X	CER.CAPACITOR CER.CAPACITOR	0.047 0.027	16V 16V
C677	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C678 C679	NCB31HK-102X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	1000p 0.1	50V 16V
C681	NCB11CK-105X	CER.CAPACITOR	1	16V
C685	NCB31EK-223X	CER.CAPACITOR	0.022	25V
C686 C687	NCB31CK-104X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	0.1	16V 16V
C688	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C689	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C801 C802	NCB31HK-102X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	1000p 0.1	50V 16V
C803	NDC31HJ-470X	CER.CAPACITOR	47p	5OV
	<u> </u>			

[SS/RFP]

Symbol No.	Part No.	Part Name	Description	
C804	NDC31HJ-271X	CER.CAPACITOR	270p 50V	
C805 C806 C807 C808 C809 C810 C811 C812 C813 C814	NCB31CK-473X NCB11CK-105X NCB31CK-104X NCB31CK-104X NCB10JM-335X NCB31CK-104X NCB31CK-104X NCB31CK-104X NCB31CK-105X NCB31HK-105X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR CER.CAPACITOR	0.047 16V 1 16V 0.1 16V 0.1 16V 3.3 6.3V 0.1 16V 0.1 16V 0.1 16V 0.1 16V 1 25V 1000p 50V	
C815 C816 C817 C818 C819 C820 C821 C822 C823 C824	NDC31HJ-330X NCB31CK-104X NCB31CK-104X NCB31CK-104X NCB31CK-104X NBE21EM-105X NCB31HK-102X NDC31HJ-330X NDC31HJ-301X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	33p 50V 0.1 16V 0.1 16V 0.1 16V 0.1 16V 1 25V 1000p 50V 33p 50V 100p 50V 0.1 16V	
C825 C826 C827 C828 C829 C830 C831 C832 C833 C834	NDC31HJ-101X NCB31CK-104X NBE41CM-106X NCB31CK-104X NCB31HK-153X NCB31CK-273X NCB31CK-273X NCB31CK-104X NCB31EK-223X NCB31EK-223X NCB31EK-223X	CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	100p 50V 0.1 16V 10 16V 0.1 16V 0.015 50V 0.027 16V 0.1 16V 0.022 25V 0.022 25V 0.022 25V	
C835 C836 C837 C838 C839 C840 C841 C842 C843	NCB31CK-104X NEN71HM-224X NEN71HM-224X NEN71HM-224X NCB31CK-104X NEH90JM-336X NEH90JM-336X NEH90JM-336X NEH90JM-336X NEH90JM-336X NCB31CK-104X	CER.CAPACITOR N.P.CAPACITOR N.P.CAPACITOR N.P.CAPACITOR CER.CAPACITOR E.CAPACITOR E.CAPACITOR E.CAPACITOR E.CAPACITOR E.CAPACITOR CER.CAPACITOR	0.1 16V 0.22 50V 0.22 50V 0.22 50V 0.1 16V 33 6.3V 33 6.3V 33 6.3V 33 6.3V 0.1 16V	
C847 C849 C851 C852 C854 C855 C856 C857 C901	NCB10JM-335X NCB10JM-335X NEH90JM-107X NCB10JM-335X NEH91CM-476X NCB31CK-104X NEH71EM-476X NEH91EM-336X NEX11DM-476X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR E.CAPACITOR	3.3 6.3V 3.3 6.3V 100 6.3V 3.3 6.3V 47 16V 0.1 16V 47 25V 33 25V 47 20V 0.1 16V	
C903 C904 C905 C906 C907 C908 C909 C910 C911 C912	NCB31HK-102X NCB31HK-103X NBE21EM-105X NCB31CK-104X NCB31HK-103X NBE21EM-105X NBE21EM-105X NCB31CK-104X NCR21CK-563X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	1000p 50V 0.01 50V 1 25V 0.1 16V 0.01 50V 1 25V 1 25V 0.1 16V 0.056 16V 0.1 16V	
C913 C914 C915 C916 C917 C918 C919	NEX11DM-476X NCB31CK-104X NCB31CK-104X NEX11DM-476X NCB31HK-102X NEX11DM-476X NEH90JM-336X	E.CAPACITOR CER.CAPACITOR CER.CAPACITOR E.CAPACITOR CER.CAPACITOR E.CAPACITOR E.CAPACITOR	47 20V 0.1 16V 0.1 16V 47 20V 1000p 50V 47 20V 33 6.3V	
VC301 VC401	NAT3112-200X NAT3112-200X	TRIM.CAPACITOR TRIM.CAPACITOR	20p DIP 20p DIP	

Symbol No.	Part No.	Part Name	Description
L101 L102 L151 L152 L153 L155 L156 L201 L202 L601	NQL024J-R47X NQL024J-R47X NQL114K-100X NQL114K-100X NQL114K-100X NQL24CN-470X NQL114K-100X NQL024J-R47X NQL024J-R47X NQL024J-R47X NQR0181-001X	COIL COIL COIL COIL COIL COIL COIL COIL	0.47uH 0.47uH 10uH 10uH 10uH 47uH 10uH 0.47uH 0.47uH 0.00uH
L602 L801 L802 L803 L804 L805 L806 L807 L808 L809	NQL124J-100X NQL12BJ-101X NQL12BJ-101X NQL12BJ-101X NQL12BJ-101X NQL12BJ-101X NQL12BJ-101X NQL12BJ-101X NQL114K-100X NQL114K-100X NQL114K-700X	COIL COIL COIL COIL COIL COIL COIL COIL	10uH 100uH 100uH 100uH 100uH 100uH 100uH 10uH 1
L901 L902 L903 L904 L905	NQL24CN-470X NQL24CN-470X NQL25CM-470X SSV2810-330V NQL12BJ-101X	COIL COIL COIL COIL	47uH 47uH 47uH 33uH 100uH
LC801	PGZ01972Z	LC FILTER	
X601	NAX0065-002X	CRYSTAL	12MHz
TH301 TH302 TH401 TH402	NAD0002-103X NAD0002-103X NAD0002-103X NAD0002-103X	THERMISTOR THERMISTOR THERMISTOR THERMISTOR	10k 10k 10k 10k
S601	NSW0018-001X	SLIDE SWITCH	
CN13 CN41 CN42 CN46 CN47 CN48 CN49 CN50 CN51 CN52	QGA1201C2-09X QGA1201C2-09X QGA1201C2-03X SCV2850-040X SCV2850-040X QGA1501C2-02W QGA1201C2-05X QGA1201C2-09X QGA1201C2-02X QGF1012F1-11X	CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR	9PIN 9PIN 3PIN 40PIN 40PIN 2PIN 5PIN 2-PIN 2PIN 11PIN
CN53 CN54 CN55	QGF1012F1-10X SSV2615-14 PGZ01932-012Z	CONNECTOR CONNECTOR CONNECTOR	10PIN 14PIN 12PIN
TP101	NNZ0009-001X	TEST POINT	TP101-601
FL301	PGZ02180-W	FL FILTER	FL301,401
K101 K151 K201	PGZ00627Z PGZ00354 PGZ00627Z	FERRATE BEADS FERRATE BEADS FERRATE BEADS	K101-103 K151,804,901 K201-802
T101 T151 T201	PGZ02198-02Z PGZ02198-02Z PGZ02198-02Z	COIL COIL COIL	
TB1	NNZ0006-001X	EARTH TERMINAL	TB1,2

6.8 AUDIO&LCD BOARD ASSEMBLY PARTS LIST 08 SCK2539-01-N0A/SCK2587-01-U0A(U)

08 SCK2539-01-E0A(E)

Symbol	2539-01-E0A(E)	Part Name	Description
No.			
IC1 IC2 IC3 IC4 IC5 IC6 IC7 IC8 IC9 IC10	TC4053BFT-X TC4053BFT-X LM837M-X TC4053BFT-X TC4053BFT-X TC4053BFT-X TC453BFT-X TC4S81F-X M5218AFP-X M5218AFP-X	I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M)	TOSHIBA TOSHIBA NATIONAL SEMICO NATIONAL SEMICO TOSHIBA TOSHIBA TOSHIBA TOSHIBA MITSUBISHI MITSUBISHI
IC11 IC12 IC13 IC14 IC15 IC16 IC17 IC18 IC19 IC20	M5282FP-X M5282FP-X TC4W53FU-X TC4W53FU-X M5218AFP-X M5218AFP-X LM837M-X LM837M-X M5218AFP-X M5218AFP-X M5218AFP-X	I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M)	MITSUBISHI MITSUBISHI TOSHIBA TOSHIBA MITSUBISHI MITSUBISHI NATIONAL SEMICO NATIONAL SEMICO MITSUBISHI MITSUBISHI MITSUBISHI MITSUBISHI
IC21 IC25 IC26 IC27 IC28 IC301 IC302 IC303 IC304 IC305	AN77L05M-X TC4S81F-X TC4S81F-X TC4S81F-X TC4S81F-X TC4W53FU-X TC4W53FU-X M5282FP-X M5282FP-X M5218AFP-X	I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M)	MATSUSHITA TOSHIBA TOSHIBA TOSHIBA TOSHIBA TOSHIBA TOSHIBA MITSUBISHI MITSUBISHI MITSUBISHI
IC306 IC307 IC308 IC309 IC310 IC313 IC314 IC315 IC401	M5218AFP-X TC4W53FU-X TC4W53FU-X LM837M-X LM837M-X M5218AFP-X M5218AFP-X AN77L05M-X PLSC1237 PLSC1262	I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M)	MITSUBISHI TOSHIBA TOSHIBA NATIONAL SEMICO NATIONAL SEMICO MITSUBISHI MITSUBISHI MATSUSHITA UPD78P054GC-3B9 (E) UPD78P054GC-3B9 (U)
IC403 IC404 IC405 IC406 IC408 IC409 IC411 IC412 IC413 IC414	TC7SU04FU-X TC4053BFT-X NJM4556AM-X MSM6338MS-K-X TC7W126FU-X TC7S66FU-X TC74VHC123AFT-X TC7W74FU-X TC7SH08FU-X NJM319M-X	I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M)	TOSHIBA TOSHIBA JRC OKI TOSHIBA TOSHIBA TOSHIBA TOSHIBA TOSHIBA TOSHIBA TOSHIBA TOSHIBA JRC
IC416 IC421 IC422 IC423 IC424 IC425 IC701 IC711 IC731 IC732	M5218AFP-X S-80840ANNP-W S-8423LFS-X AN77L05M-X BU4094BCFV-X S-80840ANNP-W NJM062M-X M5218AFP-X M5201FP-X M5201FP-X	I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M)	MITSUBISHI SEIKO SEIKO MATSUSHITA ROHM SEIKO JRC MITSUBISHI MITSUBISHI MITSUBISHI
IC733 IC734 IC772 IC901 IC902 IC903 IC904 IC905 IC906 IC907	M5218AFP-X M5218AFP-X BU4094BCFV-X BA7795FS-X BA7795FS-X TC4053BFT-X TC4053BFT-X M5218AFP-X M5218AFP-X TC4569F-X	I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M) I.C.(M)	MITSUBISHI MITSUBISHI ROHM ROHM TOSHIBA TOSHIBA MITSUBISHI TOSHIBA
Q1 Q2	2SD2240/RST/-X 2SD2240/RST/-X	TRANSISTOR TRANSISTOR	MATSUSHITA MATSUSHITA

Note: The AUDIO & LCD board assembly will be changed from SCK2539-01-N0A to SCK2587-01-U0A for future production and they do have interchangeability.

	interchangeability.				
Γ	Symbol No.	Part No.	Part Name	Description	
	Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q10	2SB1463/RST/-X 2SB1463/RST/-X 2SD2240/RST/-X 2SD2240/RST/-X 2SD2240/RST/-X 2SD2240/RST/-X DTC124EUA-X DTC124EUA-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA ROHM ROHM	
	Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q21 Q22	DTA124EUA-X DTA124EUA-X DTC124EUA-X DTC124EUA-X DTA124EUA-X DTA124EUA-X 2SK1062-X 2SK1062-X DTC124TUA-X DTC124TUA-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR FET FET TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM ROHM ROHM ROHM TOSHIBA TOSHIBA ROHM ROHM	
	O23 O24 O25 O26 O27 O28 O29 O30 O43 O44	DTC124EUA-X DTC124EUA-X DTA124EUA-X DTA124EUA-X DTC124EUA-X DTC124EUA-X DTC124EUA-X DTC124EUA-X DTC124EUA-X FMW3-X FMW3-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM ROHM ROHM ROHM ROHM ROHM ROHM	
	Q47 Q48 Q57 Q58 Q59 Q60 Q61 Q62 Q63 Q64	DTA114TKA-X DTA114TKA-X DTA124EUA-X DTA124EUA-X 2SD1820/QR/-X 2SD1820/QR/-X DTC124TUA-X DTC124TUA-X DTC124EUA-X DTC124EUA-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM ROHM ROHM MATSUSHITA MATSUSHITA ROHM ROHM ROHM ROHM ROHM	
	Q65 Q66 Q101 Q102 Q103 Q104 Q105 Q106 Q107 Q108	2SB1219/QR/-X 2SB1219/QR/-X 2SC4081/QRS/-X 2SC4081/QRS/-X DTA124EUA-X DTA124EUA-X 2SC4081/QRS/-X 2SC4081/QRS/-X 2SC4081/QRS/-X 2SC4081/QRS/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	MATSUSHITA MATSUSHITA ROHM ROHM ROHM ROHM ROHM ROHM ROHM ROHM	
	Q109 Q110 Q111 Q112 Q113 Q114 Q115 Q116 Q117 Q118	DTC144EUA-X DTC144EUA-X DTC144EUA-X DTC144EUA-X 2SC4081/QRS/-X 2SC4081/QRS/-X 2SA1577/QR/-X 2SA1577/QR/-X 2SC4081/QRS/-X 2SC4081/QRS/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM ROHM ROHM ROHM ROHM ROHM ROHM	
	Q119 Q120 Q121 Q122 Q123 Q124 Q125 Q126 Q301 Q302	2SA1577/QR/-X 2SA1577/QR/-X DTC323TK-X DTC323TK-X DTA124EUA-X DTA124EUA-X DTC124EUA-X DTC124EUA-X 2SC4081/QRS/-X 2SC4081/QRS/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM ROHM ROHM ROHM ROHM ROHM ROHM	
	Q303 Q304 Q305 Q306 Q307	DTA124EUA-X DTA124EUA-X 2SC4081/QRS/-X 2SC4081/QRS/-X 2SC4081/QRS/-X	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	ROHM ROHM ROHM ROHM ROHM	

[AUDIO&LCD]

ymbol No.	Part No.	Part Name	Description	Symbol No.	Part
0308	2SC4081/QRS/-X	TRANSISTOR	ROHM	D353	DAP202U
Q309	DTC144EUA-X	TRANSISTOR	ROHM	D354	DAP202U
Q310	DTC144EUA-X	TRANSISTOR	ROHM	D403	DAN202U
2311	DTC144EUA-X	TRANSISTOR	ROHM	D404	MA3020->
2312	DTC144EUA-X	TRANSISTOR	ROHM	D405	DAN202U
			ļ	D406	DA204U->
313	2SC4081/QRS/-X	TRANSISTOR	ROHM	D407	DA204U->
14	2SC4081/QRS/-X	TRANSISTOR	ROHM	D409	DA204U->
15	2SA1577/QR/-X	TRANSISTOR	ROHM	D410	DA204U->
16	2SA1577/QR/-X	TRANSISTOR	ROHM	D411	MA3024->
317	2SC4081/QRS/-X	TRANSISTOR	ROHM		
318	2SC4081/QRS/-X	TRANSISTOR	ROHM	D412	MA3024->
319	2SA1577/QR/-X	TRANSISTOR	ROHM	D701	DAN202L
320	2SA1577/QR/-X	TRANSISTOR	ROHM	D702	DAN202U
321	DTC323TK-X	TRANSISTOR	ROHM	D703	DAN202U
322	DTC323TK-X	TRANSISTOR	ROHM	D731	DA204U->
				D751	MA736-X
323	DTA124EUA-X	TRANSISTOR	ROHM	D901	MA3082/I
24	DTA124EUA-X	TRANSISTOR	ROHM		
325	DTC124EUA-X	TRANSISTOR	ROHM		
326	DTC124EUA-X	TRANSISTOR	ROHM	LD401	GL5HD60
31	DTC124EUA-X	TRANSISTOR	ROHM	1 1	ļ
332	DTC124EUA-X	TRANSISTOR	ROHM		
101	DTC124EUA-X	TRANSISTOR	ROHM	R1	NRSA02J
103	DTC124EUA-X	TRANSISTOR	ROHM	R2	NRSA02J
711	FMW3-X	TRANSISTOR	ROHM	R3	NRSA02J
731	DTC124EUA-X	TRANSISTOR	ROHM	R4	NRSA02J
				R5	NRSA02J
732	FMW3-X	TRANSISTOR	ROHM	R6	NRSA02J
733	2SB1463/RST/-X	TRANSISTOR	MATSUSHITA	R7	NRSA02J
51	2SC2873/Y/-X	TRANSISTOR	TOSHIBA	R8	NRSA02J
771	DTC124TUA-X	TRANSISTOR	ROHM	R9	NRSA02J
72	DTA124EUA-X	TRANSISTOR	ROHM	R10	NRSA02J
901	DTC124EUA-X	TRANSISTOR	ROHM		
902	DTC124EUA-X	TRANSISTOR	ROHM	R11	NRSA02J
903	DTC124EUA-X	TRANSISTOR	ROHM	R12	NRSA02J
904	DTC124EUA-X	TRANSISTOR	ROHM	R13	NRSA63D
05	2SC4081/QRS/-X	TRANSISTOR	ROHM	R14	NRSA63D
				R15	NRSA63E
906	2SC4081/QRS/-X	TRANSISTOR	ROHM	R16	NRSA63D
911	2SC2873/Y/-X	TRANSISTOR	TOSHIBA	R17	NRSA63D
912	2SC2873/Y/-X	TRANSISTOR	TOSHIBA	R18	NRSA63D
913	DTA124EUA-X	TRANSISTOR	ROHM	R19	NRSA63D
914	DTC124EUA-X	TRANSISTOR	ROHM	R20	NRSA63D
115	2SK1062-X	FET	TOSHIBA	1 1	
				R21	NRSA63D
				R22	NRSA63D
1	DA204U-X	DIODE	ROHM	R23	NRSA63D
2	DA204U-X	DIODE	ROHM	R24	NRSA63D
3	DA204U-X	DIODE	ROHM	R25	NRSA63E
4	DA204U-X	DIODE	ROHM	R26	NRSA63D
5	DA204U-X	DIODE	ROHM	R27	NRSA63J
6	DA204U-X	DIODE	ROHM	R28	NRSA63J
7	DA204U-X	DIODE	ROHM	R29	NRSA63E
3	DA204U-X	DIODE	ROHM	R30	NRSA63E
11	MA116-X	CHIP DIODE	MATSUSHITA	1 1	
12	MA116-X	CHIP DIODE	MATSUSHITA	R33	NRSA63E
				R34	NRSA63E
13	MA116-X	CHIP DIODE	MATSUSHITA	R35	NRSA63E
14	MA116-X	CHIP DIODE	MATSUSHITA	R36	NRSA63E
17	DAP202U-X	DIODE	ROHM	R37	NRSA63
18	DAP202U-X	DIODE	ROHM	R38	NRSA63[
19	MA116-X	CHIP DIODE	MATSUSHITA	R39	NRSA63
20	MA116-X	CHIP DIODE	MATSUSHITA	R40	NRSA63I
21	MA116-X	CHIP DIODE	MATSUSHITA	R41	NRSA63[
22	MA116-X	CHIP DIODE	MATSUSHITA	R42	NRSA63
23	DAP202U-X	DIODE	ROHM	1 1	
24	DAP202U-X	DIODE	ROHM	R43	NRSA631
				R44	NRSA630
341	MA116-X	CHIP DIODE	MATSUSHITA	R45	NRSA63
342	MA116-X	CHIP DIODE	MATSUSHITA	R46	NRSA630
	MA116-X	CHIP DIODE	MATSUSHITA	R47	NRSA63
343	MA116-X	CHIP DIODE	MATSUSHITA	R48	NRSA63I
	DAP202U-X	DIODE	ROHM	R49	NRSA63I
344		DIODE	ROHM	R50	NRSA63
344 347	DAP202U-X			R55	NRSA63I
344 347 348	DAP202U-X MA116-X	CHIP DIODE	MATSUSHITA	l l uoo	INDOAGO
344 347 348 349		CHIP DIODE CHIP DIODE	MATSUSHITA	R56	NRSA63I
344 347 348 349 350	MA116-X			1 1	
D343 D344 D347 D348 D349 D350 D351 D352	MA116-X MA116-X	CHIP DIODE	MATSUSHITA	1 1	

Symbol No.	Part No.	Part Name	Description	
D353 D354 D403 D404 D405 D406 D407 D409 D410 D411	DAP202U-X DAP202U-X DAN202U-X MA3020-X DAN202U-X DA204U-X DA204U-X DA204U-X DA204U-X MA3024-X	DIODE DIODE DIODE ZENER DIODE DIODE DIODE DIODE DIODE DIODE DIODE ZENER DIODE	ROHM ROHM ROHM MATSUSHITA ROHM ROHM ROHM ROHM ROHM MATSUSHITA	
D412 D701 D702 D703 D731 D751 D901	MA3024-X DAN202U-X DAN202U-X DAN202U-X DA204U-X MA736-X MA3082/L/-X	ZENER DIODE DIODE DIODE DIODE DIODE DIODE DIODE CHIP DIODE	MATSUSHITA ROHM ROHM ROHM ROHM MATSUSHITA MATSUSHITA	
LD401	GL5HD60	L.E.D.		
R1 R2 R3 R4 R5 R6 R7 R8 R9 R10	NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-242X NRSA02J-242X NRSA02J-242X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	2.2k 1/10 2.2k 1/10 2.2k 1/10 2.2k 1/10 2.2k 1/10 2.2k 1/10 2.2k 1/10 2.2k 1/10 2.2k 1/10 2.2k 1/10 2.4k 1/10	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
R11 R12 R13 R14 R15 R16 R17 R18 R19	NRSA02J-242X NRSA02J-242X NRSA63D-243X NRSA63D-243X NRSA63D-243X NRSA63D-243X NRSA63D-273X NRSA63D-273X NRSA63D-274X NRSA63D-274X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	2.4k 1/10 2.4k 1/10 24k 1/16 24k 1/16 24k 1/16 24k 1/16 27k 1/16 27k 1/16 270k 1/16	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
R21 R22 R23 R24 R25 R26 R27 R28 R29 R30	NRSA63D-274X NRSA63D-274X NRSA63D-473X NRSA63D-473X NRSA63D-473X NRSA63D-473X NRSA63J-105X NRSA63J-105X NRSA63J-105X NRSA63D-472X NRSA63D-472X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	270k 1/16 270k 1/16 47k 1/16 47k 1/16 47k 1/16 47k 1/16 11M 1/16 1.00 1/16 4.7k 1/16 4.7k 1/16	6W 6W 6W 6W 6W 6W
R33 R34 R35 R36 R37 R38 R39 R40 R41 R42	NRSA63D-472X NRSA63D-472X NRSA63D-471X NRSA63D-471X NRSA63D-471X NRSA63D-471X NRSA63D-361X NRSA63D-361X NRSA63D-361X NRSA63D-361X NRSA63D-361X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	4.7k 1/16 4.7k 1/16 470 1/16 470 1/16 470 1/16 470 1/16 470 1/16 360 1/16 360 1/16 360 1/16 360 1/16	SW SW SW SW SW SW SW
R43 R44 R45 R46 R47 R48 R49 R50 R55 R56	NRSA63D-222X NRSA63D-222X NRSA63D-222X NRSA63D-122X NRSA63D-122X NRSA63D-122X NRSA63D-122X NRSA63D-122X NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	1.2k 1/10 1.2k 1/10 1.2k 1/10 1.2k 1/10 1.0k 1/10	SW
R57 R58	NRSA63D-104X NRSA63D-104X	M.G.RESISTOR M.G.RESISTOR		6W 6W

Symbol No.	Part No.	Part Name	Description
R63	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R64	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R65	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R66	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R67	NRSA63D-471X	M.G.RESISTOR	470 1/16W
R68		M.G.RESISTOR	} ' I
	NRSA63D-471X		
R71	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R72	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R75 R76	NRSA63D-332X NRSA63D-332X	M.G.RESISTOR M.G.RESISTOR	3.3k 1/16W 3.3k 1/16W
R77	NRSA63D-332X	M.G.RESISTOR	3.3k 1/16W
R78	NRSA63D-332X	M.G.RESISTOR	3.3k 1/16W
R79	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R80	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R81	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R82	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R83	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R84	NRSA63D-153X		
N04	NH3A63D-153X	M.G.RESISTOR	15k 1/16W
R85 R86	NRSA63D-153X NRSA63D-153X	M.G.RESISTOR M.G.RESISTOR	15k 1/16W 15k 1/16W
R89	NRSA63D-193X NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R90	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R91	NRSA63D-104X NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R92	NRSA63D-104X NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R93		M.G.RESISTOR	
R93 R94	NRSA63D-103X		
R94 R95	NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	
R96	NRSA63D-202X NRSA63D-202X	M.G.RESISTOR	2k 1/16W 2k 1/16W
. 007			·
R97	NRSA63D-511X	M.G.RESISTOR M.G.RESISTOR	510 1/16W 510 1/16W
R98	NRSA63D-511X		
R101	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R102	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R103	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R104	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R107	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R108	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R109	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R110	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R111	NRSA63D-154X	M.G.RESISTOR	150k 1/16W
R112	NRSA63D-154X	M.G.RESISTOR	150k 1/16W
R113	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R114	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R115	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R116	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R117	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R118 '	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R119	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R120	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R121	NRSA63D-103X	M.G.RESISTOR	10k 1/16VV
R122	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R123	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R124	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R125	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R126	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R127	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R128	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R129	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R130	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R131	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R132	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R133	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R134	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R135	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R136	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R137	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R138	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R139	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R140	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R141	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R142	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R143	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R144	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R145	NRSA63D-333X	M.G.RESISTOR	33k 1/16W

Symbol Part No. Part Name Description					
### REAGED-103X M. G. RESISTOR		Part No.	Part Name	Descrip	otion
R149	1	l .	1	1	
R150					
R151 NRSA63D-273X M.G.RESISTOR 27k 1/16W NRSA63D-273X M.G.RESISTOR 27k 1/16W NRSA63D-242X M.G.RESISTOR 2.4k 1/16W NRSA63D-242X M.G.RESISTOR 2.4k 1/16W NRSA63D-242X M.G.RESISTOR 2.4k 1/16W NRSA63D-242X M.G.RESISTOR 2.4k 1/16W NRSA63D-242X M.G.RESISTOR 39k 1/16W NRSA63D-393X M.G.RESISTOR 39k 1/16W NRSA63D-393X M.G.RESISTOR 39k 1/16W NRSA63D-32X M.G.RESISTOR 3.3k 1/16W NRSA63D-32X M.G.RESISTOR 3.3k 1/16W NRSA63D-32X M.G.RESISTOR 3.3k 1/16W NRSA63D-472X M.G.RESISTOR 4.7k 1/16W NRSA63D-32X M.G.RESISTOR 4.7k 1/16W NRSA63D-331X M.G.RESISTOR 3.3k 1/16W NRSA63D-331X M.G.RESISTOR 300 1/16W NRSA63D-331X M.G.RESISTOR 300 1/16W NRSA63D-331X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 300 1/16W NRSA63D-103X M.G.RESISTOR 100 1/16W NRSA63D-103X M.G.RESISTOR 100 1/16W NRSA63D-103X M.G.RESISTOR 100 1/16W NRSA63D-103X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 300 1/16W NRSA63D-104X M.G.RESISTOR 300 1/16W NRSA63D-104X M.G.RESISTOR 300 1/16W NRSA63D-104X M.G.RESISTOR 300 1/16W NRSA63D-104X M.G.RESISTOR 300 1/16W NRSA63D-104X M.G.RESISTOR 300 1/16W NRSA63D-104X M.G.RESISTOR 300 1/16W NRSA63D-104X M.G.RESISTOR 300 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RESISTOR 100 1/16W NRSA63D-104X M.G.RE		NRSA63D-472X	M.G.RESISTOR		
R152 NIFSA63D-273X M. G. RESISTOR 27k 1/16W	R150	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16VV
R153					
R154 NRSA63D-393X		1			
R156				2.4k	1/16VV
R150					
R161		l .		1	
R162)			1/16W
R163		3			
R164					
R165 NRSA63D-103X M.G.RESISTOR 10k 1/16W R166 NRSA63D-03XX M.G.RESISTOR 330 1/16W R168 NRSA63D-331X M.G.RESISTOR 330 1/16W R169 NRSA63D-103X M.G.RESISTOR 10k 1/16W R170 NRSA63D-103X M.G.RESISTOR 10k 1/16W R171 NRSA63D-104X M.G.RESISTOR 10k 1/16W R172 NRSA63D-104X M.G.RESISTOR 100k 1/16W R174 NRSA63D-470X M.G.RESISTOR 47 1/16W R174 NRSA63D-334X M.G.RESISTOR 47 1/16W R175 NRSA63D-334X M.G.RESISTOR 330k 1/16W R176 NRSA63D-334X M.G.RESISTOR 330k 1/16W R177 NRSA63D-334X M.G.RESISTOR 330k 1/16W R179 NRSA63D-334X M.G.RESISTOR 330k 1/16W R179 NRSA63D-334X M.G.RESISTOR 330k 1/16W					
R167	R165	NRSA63D-103X	M.G.RESISTOR	10k	
R168					
R170					
R171					
R172					
R174 NRSA63D-470X M.G.RESISTOR 47 1/16W R175 NRSA63D-334X M.G.RESISTOR 330k 1/16W R176 NRSA63D-334X M.G.RESISTOR 330k 1/16W R177 NRSA63D-244X M.G.RESISTOR 240k 1/16W R177 NRSA63D-234X M.G.RESISTOR 240k 1/16W R179 NRSA63D-334X M.G.RESISTOR 330k 1/16W R180 NRSA63D-334X M.G.RESISTOR 330k 1/16W R180 NRSA63D-103X M.G.RESISTOR 330k 1/16W R181 NRSA63D-103X M.G.RESISTOR 10k 1/16W R182 NRSA63D-103X M.G.RESISTOR 10k 1/16W R184 NRSA63D-103X M.G.RESISTOR 10k 1/16W R185 NRSA63D-103X M.G.RESISTOR 10k 1/16W R185 NRSA63D-334X M.G.RESISTOR 330k 1/16W R186 NRSA63D-334X M.G.RESISTOR 330k 1/16W R186 NRSA63D-473X M.G.RESISTOR 330k 1/16W R187 NRSA63D-473X M.G.RESISTOR 330k 1/16W R189 NRSA63D-473X M.G.RESISTOR 47k 1/16W R189 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R190 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R190 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R191 NRSA63D-472X M.G.RESISTOR 1k 1/16W R194 NRSA63D-472X M.G.RESISTOR 1k 1/16W R194 NRSA63D-472X M.G.RESISTOR 1k 1/16W R194 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R195 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-103X M.G.RESISTOR 4.7k 1/16W R198 NRSA63D-103X M.G.RESISTOR 4.7k 1/16W R204 NRSA63D-103X M.G.RESISTOR 10k 1/16W R204 NRSA63D-103X M.G.RESISTOR 10k 1/16W R205 NRSA63D-103X M.G.RESISTOR 10k 1/16W R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 1			l .		
R175	R173	NRSA63D-470X	M.G.RESISTOR	47	1/16VV
R176				1	
R177 NRSA63D-244X M.G.RESISTOR 240k 1/16W R178 NRSA63D-244X M.G.RESISTOR 240k 1/16W R180 NRSA63D-334X M.G.RESISTOR 330k 1/16W R181 NRSA63D-103X M.G.RESISTOR 10k 1/16W R182 NRSA63D-103X M.G.RESISTOR 10k 1/16W R183 NRSA63D-103X M.G.RESISTOR 10k 1/16W R184 NRSA63D-103X M.G.RESISTOR 10k 1/16W R185 NRSA63D-334X M.G.RESISTOR 330k 1/16W R185 NRSA63D-334X M.G.RESISTOR 330k 1/16W R186 NRSA63D-473X M.G.RESISTOR 47k 1/16W R188 NRSA63D-473X M.G.RESISTOR 47k 1/16W R188 NRSA63D-472X M.G.RESISTOR 47k 1/16W R189 NRSA63D-102X M.G.RESISTOR 4.7k 1/16W R191 NRSA63D-102X M.G.RESISTOR 4.7k 1/16W <tr< td=""><td></td><td></td><td></td><td>t</td><td></td></tr<>				t	
R179 NRSA63D-334X M.G.RESISTOR 330k 1/16W R180 NRSA63D-103X M.G.RESISTOR 10k 1/16W R181 NRSA63D-103X M.G.RESISTOR 10k 1/16W R182 NRSA63D-103X M.G.RESISTOR 10k 1/16W R183 NRSA63D-103X M.G.RESISTOR 10k 1/16W R184 NRSA63D-103X M.G.RESISTOR 10k 1/16W R185 NRSA63D-334X M.G.RESISTOR 330k 1/16W R186 NRSA63D-334X M.G.RESISTOR 330k 1/16W R187 NRSA63D-3473X M.G.RESISTOR 47k 1/16W R188 NRSA63D-473X M.G.RESISTOR 47k 1/16W R189 NRSA63D-472X M.G.RESISTOR 47k 1/16W R199 NRSA63D-472X M.G.RESISTOR 4,7k 1/16W R191 NRSA63D-102X M.G.RESISTOR 1k 1/16W R191 NRSA63D-102X M.G.RESISTOR 1k 1/16W			M.G.RESISTOR	240k	1/16W
R180 NRSA63D-334X M.G.RESISTOR 330k 1/16W R181 NRSA63D-103X M.G.RESISTOR 10k 1/16W R182 NRSA63D-103X M.G.RESISTOR 10k 1/16W R183 NRSA63D-103X M.G.RESISTOR 10k 1/16W R184 NRSA63D-334X M.G.RESISTOR 330k 1/16W R186 NRSA63D-334X M.G.RESISTOR 330k 1/16W R186 NRSA63D-334X M.G.RESISTOR 330k 1/16W R187 NRSA63D-473X M.G.RESISTOR 47k 1/16W R188 NRSA63D-472X M.G.RESISTOR 47k 1/16W R189 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R190 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R191 NRSA63D-102X M.G.RESISTOR 4.7k 1/16W R192 NRSA63D-102X M.G.RESISTOR 4.7k 1/16W R193 NRSA63D-102X M.G.RESISTOR 4.7k 1/16W <					
R181 NRSA63D-103X M.G.RESISTOR 10k 1/16W R182 NRSA63D-103X M.G.RESISTOR 10k 1/16W R184 NRSA63D-103X M.G.RESISTOR 10k 1/16W R185 NRSA63D-103X M.G.RESISTOR 10k 1/16W R185 NRSA63D-334X M.G.RESISTOR 330k 1/16W R186 NRSA63D-34XX M.G.RESISTOR 330k 1/16W R187 NRSA63D-34XX M.G.RESISTOR 47k 1/16W R187 NRSA63D-473X M.G.RESISTOR 47k 1/16W R188 NRSA63D-472X M.G.RESISTOR 47k 1/16W R189 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R191 NRSA63D-102X M.G.RESISTOR 1k 1/16W R191 NRSA63D-102X M.G.RESISTOR 1k 1/16W R192 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R193 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W				1	
R183 NRSA63D-103X M.G.RESISTOR 10k 1/16W 1/1	R181	NRSA63D-103X	M.G.RESISTOR	1	
R184 NRSA63D-103X M.G.RESISTOR 10k 1/16W R185 NRSA63D-334X M.G.RESISTOR 330k 1/16W R186 NRSA63D-334X M.G.RESISTOR 330k 1/16W R187 NRSA63D-473X M.G.RESISTOR 47k 1/16W R188 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R199 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R190 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R190 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R191 NRSA63D-102X M.G.RESISTOR 1k 1/16W R192 NRSA63D-102X M.G.RESISTOR 1k 1/16W R193 NRSA63D-102X M.G.RESISTOR 1k 1/16W R194 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R195 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W	R182	NRSA63D-103X	M.G.RESISTOR		
R185 NRSA63D-334X M.G.RESISTOR 330k 1/16W R186 NRSA63D-334X M.G.RESISTOR 330k 1/16W R187 NRSA63D-473X M.G.RESISTOR 47k 1/16W R188 NRSA63D-473X M.G.RESISTOR 47k 1/16W R189 NRSA63D-472X M.G.RESISTOR 47k 1/16W R190 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R191 NRSA63D-102X M.G.RESISTOR 1k 1/16W R192 NRSA63D-102X M.G.RESISTOR 1k 1/16W R192 NRSA63D-102X M.G.RESISTOR 4.7k 1/16W R193 NRSA63D-102X M.G.RESISTOR 4.7k 1/16W R194 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R195 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-103X M.G.RESISTOR 10k 1/16W				1	
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R189 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R190 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R191 NRSA63D-102X M.G.RESISTOR 1k 1/16W R192 NRSA63D-102X M.G.RESISTOR 1k 1/16W R193 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R194 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R195 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-103X M.G.RESISTOR 4.7k 1/16W R201 NRSA63D-103X M.G.RESISTOR 10k 1/16W <					
R191 NRSA63D-102X M.G.RESISTOR 1k 1/16W R192 NRSA63D-102X M.G.RESISTOR 1k 1/16W R193 NRSA63D-102X M.G.RESISTOR 1k 1/16W R194 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R195 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R198 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R201 NRSA63D-103X M.G.RESISTOR 4.7k 1/16W R201 NRSA63D-103X M.G.RESISTOR 10k 1/16W R204 NRSA63D-103X M.G.RESISTOR 10k 1/16W	R189	NRSA63D-472X			
R192 NRSA63D-102X M.G.RESISTOR 1k 1/16W R193 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R194 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R195 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R198 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R198 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R198 NRSA63D-103X M.G.RESISTOR 4.7k 1/16W R201 NRSA63D-103X M.G.RESISTOR 10k 1/16W R202 NRSA63D-103X M.G.RESISTOR 10k 1/16W R203 NRSA63D-103X M.G.RESISTOR 10k 1/16W R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>					
R194 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R195 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R198 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R201 NRSA63D-103X M.G.RESISTOR 1.0k 1/16W R201 NRSA63D-103X M.G.RESISTOR 1.0k 1/16W R203 NRSA63D-103X M.G.RESISTOR 1.0k 1/16W R204 NRSA63D-103X M.G.RESISTOR 1.0k 1/16W R205 NRSA63D-103X M.G.RESISTOR 1.0k 1/16W R206 NRSA63D-103X M.G.RESISTOR 1.0k 1/16W R207 NRSA63D-103X M.G.RESISTOR 1.0k 1/16W					
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R196 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R197 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R198 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R201 NRSA63D-103X M.G.RESISTOR 10k 1/16W R202 NRSA63D-103X M.G.RESISTOR 10k 1/16W R203 NRSA63D-103X M.G.RESISTOR 10k 1/16W R204 NRSA63D-103X M.G.RESISTOR 10k 1/16W R205 NRSA63D-103X M.G.RESISTOR 10k 1/16W R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W					
R197 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R198 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R201 NRSA63D-103X M.G.RESISTOR 10k 1/16W R202 NRSA63D-103X M.G.RESISTOR 10k 1/16W R203 NRSA63D-103X M.G.RESISTOR 10k 1/16W R204 NRSA63D-103X M.G.RESISTOR 10k 1/16W R205 NRSA63D-103X M.G.RESISTOR 10k 1/16W R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R210 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R212 NRSA63D-103X M.G.RESISTOR 10k 1/16W				1	
R201 NRSA63D-103X M.G.RESISTOR 10k 1/16W R202 NRSA63D-103X M.G.RESISTOR 10k 1/16W R203 NRSA63D-103X M.G.RESISTOR 10k 1/16W R204 NRSA63D-103X M.G.RESISTOR 10k 1/16W R205 NRSA63D-103X M.G.RESISTOR 10k 1/16W R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R212 NRSA63D-103X M.G.RESISTOR 10k 1/16W R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-133X M.G.RESISTOR 10k 1/16W R234 NRSA63D-332X M.G.RESISTOR 18k 1/16W	R197		M.G.RESISTOR		
R202 NRSA63D-103X M.G.RESISTOR 10k 1/16W R203 NRSA63D-103X M.G.RESISTOR 10k 1/16W R204 NRSA63D-103X M.G.RESISTOR 10k 1/16W R205 NRSA63D-103X M.G.RESISTOR 10k 1/16W R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R212 NRSA63D-103X M.G.RESISTOR 10k 1/16W R213 NRSA63D-103X M.G.RESISTOR 10k 1/16W R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-183X M.G.RESISTOR 10k 1/16W R234 NRSA63D-322X M.G.RESISTOR 18k 1/16W					
R204 NRSA63D-103X M.G.RESISTOR 10k 1/16W R205 NRSA63D-103X M.G.RESISTOR 10k 1/16W R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R212 NRSA63D-103X M.G.RESISTOR 10k 1/16W R213 NRSA63D-103X M.G.RESISTOR 10k 1/16W R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-183X M.G.RESISTOR 18k 1/16W R234 NRSA63D-332X M.G.RESISTOR 18k 1/16W R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63J-105X M.G.RESISTOR 1M 1/16W				10k	1/16VV
R205 NRSA63D-103X M.G.RESISTOR 10k 1/16W R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R212 NRSA63D-103X M.G.RESISTOR 10k 1/16W R213 NRSA63D-103X M.G.RESISTOR 10k 1/16W R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-183X M.G.RESISTOR 18k 1/16W R234 NRSA63D-183X M.G.RESISTOR 18k 1/16W R235 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63J-105X M.G.RESISTOR 1M 1/16W					
R206 NRSA63D-103X M.G.RESISTOR 10k 1/16W R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R212 NRSA63D-103X M.G.RESISTOR 10k 1/16W R213 NRSA63D-103X M.G.RESISTOR 10k 1/16W R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-183X M.G.RESISTOR 18k 1/16W R234 NRSA63D-183X M.G.RESISTOR 18k 1/16W R235 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63D-105X M.G.RESISTOR 1M 1/16W R238 NRSA63D-105X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 1M 1/16W					·
R207 NRSA63D-103X M.G.RESISTOR 10k 1/16W R208 NRSA63D-103X M.G.RESISTOR 10k 1/16W R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R212 NRSA63D-103X M.G.RESISTOR 10k 1/16W R213 NRSA63D-103X M.G.RESISTOR 10k 1/16W R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-183X M.G.RESISTOR 18k 1/16W R234 NRSA63D-183X M.G.RESISTOR 18k 1/16W R235 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63D-105X M.G.RESISTOR 1M 1/16W R238 NRSA63D-105X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R242 NRSA63D-183X M.G.RESISTOR 4.7k 1/16W					
R211 NRSA63D-103X M.G.RESISTOR 10k 1/16W R212 NRSA63D-103X M.G.RESISTOR 10k 1/16W R213 NRSA63D-103X M.G.RESISTOR 10k 1/16W R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-183X M.G.RESISTOR 18k 1/16W R234 NRSA63D-183X M.G.RESISTOR 18k 1/16W R235 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63D-105X M.G.RESISTOR 1M 1/16W R238 NRSA63J-105X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R242 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W	R207	NRSA63D-103X	M.G.RESISTOR		
R212 NRSA63D-103X M.G.RESISTOR 10k 1/16W R213 NRSA63D-103X M.G.RESISTOR 10k 1/16W R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-183X M.G.RESISTOR 18k 1/16W R234 NRSA63D-183X M.G.RESISTOR 18k 1/16W R235 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63D-332X M.G.RESISTOR 1M 1/16W R237 NRSA63D-105X M.G.RESISTOR 1M 1/16W R238 NRSA63D-472X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R242 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W					
R214 NRSA63D-103X M.G.RESISTOR 10k 1/16W R233 NRSA63D-183X M.G.RESISTOR 18k 1/16W R234 NRSA63D-183X M.G.RESISTOR 18k 1/16W R235 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63D-105X M.G.RESISTOR 1M 1/16W R238 NRSA63J-105X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R242 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W	R212	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R233 NRSA63D-183X M.G.RESISTOR 18k 1/16W R234 NRSA63D-183X M.G.RESISTOR 18k 1/16W R235 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63J-105X M.G.RESISTOR 1M 1/16W R238 NRSA63J-105X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R242 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W				1	
R234 NRSA63D-183X M.G.RESISTOR 18k 1/16W R235 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63J-105X M.G.RESISTOR 1M 1/16W R238 NRSA63J-105X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R242 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W				1	
R236 NRSA63D-332X M.G.RESISTOR 3.3k 1/16W R237 NRSA63J-105X M.G.RESISTOR 1M 1/16W R238 NRSA63J-105X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R242 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W					1/16 W
R237 NRSA63J-105X M.G.RESISTOR 1M 1/16W R238 NRSA63J-105X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R242 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W					
R238 NRSA63J-105X M.G.RESISTOR 1M 1/16W R241 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R242 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W					
R242 NRSA63D-472X M.G.RESISTOR 4.7k 1/16W R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W	R238	NRSA63J-105X	M.G.RESISTOR	1M	1/16W
R247 NRSA63D-183X M.G.RESISTOR 18k 1/16W					
			L .	1	

[AUDIO&LCD]

Symbol No.	Part No.	Part Name		Description	Symbol No.	Part No.	Part Name		Description
R249	NRSA63D-202X	M.G.RESISTOR	2k	1/16W	R341	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R250	NRSA63D-202X	M.G.RESISTOR	2k	1/16W	R342	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
11250	THIOROOD ZOZX	111.0.1120.0101	-"	.,	R343	NRSA63D-470X	M.G.RESISTOR	47	1/16W
R251	NRSA63J-105X	M.G.RESISTOR	1M	1/16W	R344	NRSA63D-470X	M.G.RESISTOR	47	1/16W
R252	NRSA63J-105X	M.G.RESISTOR	1M	1/16W	R345	NRSA63D-334X	M.G.RESISTOR	330k	1/16W
R261	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R346	NRSA63D-334X	M.G.RESISTOR	330k	1/16W
R262	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R347	NRSA63D-244X	M.G.RESISTOR	240k	1/16W
R263	NRSA63D-202X	M.G.RESISTOR	2k	1/16W	R348	NRSA63D-244X	M.G.RESISTOR	240k	1/16W
R264	NRSA63D-202X	M.G.RESISTOR	2k	1/16W	R349	NRSA63D-334X	M.G.RESISTOR	330k	1/16W
R265	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	R350	NRSA63D-334X	M.G.RESISTOR	330k	1/16W
R266	NRSA63D-104X	M.G.RESISTOR	100k	1/16W					
R267	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W	R351	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R268	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W	R352	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
1 11200		,,,,,		·	R353	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R269	NRSA63D-101X	M.G.RESISTOR	100	1/16W	R354	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R270	NRSA63D-101X	M.G.RESISTOR	100	1/16W	R355	NRSA63D-334X	M.G.RESISTOR	330k	1/16W
R281	NRSA63D-154X	M.G.RESISTOR	150k	1/16W	R356	NRSA63D-334X	M.G.RESISTOR	330k	1/16W
R282	NRSA63D-154X	M.G.RESISTOR	150k	1/16W	R357	NRSA63D-473X	M.G.RESISTOR	47k	1/16W
R283	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R358	NRSA63D-473X	M.G.RESISTOR	47k	1/16W
R284	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R359	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W
R285	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R360	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W
R286	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	İ				
R287	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R361	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R288	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R362	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
					R363	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W
R289	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R364	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W
R290	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R365	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W
R291	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R366	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W
R292	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R367	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R293	NRSA63D-333X	M.G.RESISTOR	33k	1/16W	R368	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R294	NRSA63D-333X	M.G.RESISTOR	33k	1/16W	R371	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R295	NRSA63D-223X	M.G.RESISTOR	22k	1/16W	R372	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R296	NRSA63D-223X	M.G.RESISTOR	22k	1/16W	1				
R297	NRSA63D-473X	M.G.RESISTOR	47k	1/16W	R373	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R298	NRSA63D-473X	M.G.RESISTOR	47k	1/16W	R374	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
			l	1	R381	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R299	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	R382	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R300	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	R383	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R301	NRSA63D-473X	M.G.RESISTOR	47k	1/16W	R384	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R302	NRSA63D-473X	M.G.RESISTOR	47k	1/16W	R385	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R303	NRSA63D-473X	M.G.RESISTOR	47k	1/16W	R386	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R304	NRSA63D-473X	M.G.RESISTOR	47k	1/16W	R387	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R305	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R388	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R306	NRSA63D-103X	M.G.RESISTOR	10k	1/16W					
R307	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R397	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R308	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R398	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
1				1	R399	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R309	NRSA63D-153X	M.G.RESISTOR	15k	1/16W	R400	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R310	NRSA63D-153X	M.G.RESISTOR	15k	1/16W	R401	NRSA63D-121X	M.G.RESISTOR	120	1/16W
R311	NRSA63D-223X	M.G.RESISTOR	22k	1/16W	R402	NRSA63D-121X	M.G.RESISTOR	120	1/16W
R312	NRSA63D-223X	M.G.RESISTOR	22k	1/16W	R403	NRSA63D-121X	M.G.RESISTOR	120	1/16W
R313	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R404	NRSA63D-223X	M.G.RESISTOR	22k	1/16W
R314	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R405	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R315	NRSA63D-333X	M.G.RESISTOR	33k	1/16W	R408	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R316	NRSA63D-333X	M.G.RESISTOR	33k	1/16W				.	4 (4 0) 4 (
R317	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R409	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R318	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R415	NRSA63D-333X	M.G.RESISTOR	33k	1/16W
					R417	NRSA63D-224X	M.G.RESISTOR	220k	1/16W
R319	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W	R418	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R320	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W	R419	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R321	NRSA63D-273X	M.G.RESISTOR	27k	1/16W	R420	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R322	NRSA63D-273X	M.G.RESISTOR	27k	1/16W	R421	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R323	NRSA63D-242X	M.G.RESISTOR	2.4k	1/16W	R431	NRSA63D-474X	M.G.RESISTOR	470k	1/16W
R324	NRSA63D-242X	M.G.RESISTOR	2.4k	1/16W	R432	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R325	NRSA63D-393X	M.G.RESISTOR	39k	1/16W	R433	NRSA63D-473X	M.G.RESISTOR	47k	1/16W
R326	NRSA63D-393X	M.G.RESISTOR	39k	1/16W				1	4 (4 0) 4 (
R329	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W	R434	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R330	NRSA63D-332X	M.G.RESISTOR	3.3k	1/16W	R435	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
1					R436	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R331	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W	R437	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R332	NRSA63D-472X	M.G.RESISTOR	4.7k	1/16W	R438	NRSA63D-302X	M.G.RESISTOR	3k	1/16W
R333	NRSA63D-331X	M.G.RESISTOR	330	1/16W	R439	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16W
R334	NRSA63D-331X	M.G.RESISTOR	330	1/16W	R440	NRSA63D-750X	M.G.RESISTOR	75	1/16W
R335	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R441	NRSA63D-303X	M.G.RESISTOR	30k	1/16W
R336	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R442	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R337	NRSA63D-331X	M.G.RESISTOR	330	1/16W	R443	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R338	NRSA63D-331X	M.G.RESISTOR	330	1/16W	R444	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R339	NRSA63D-103X	M.G.RESISTOR	10k	1/16W					
R340	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	R445	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
		İ		j	R446	NRSA63D-223X	M.G.RESISTOR	22k	1/16W
L					L				

Symbol No.	Part No.	Part Name	Description
	NIDCACOD 400V	M C DECICTOR	1/10/1
R447	NRSA63D-103X	M.G.RESISTOR	10k 1/16W 100k 1/16W
R451	NRSA63D-104X	M.G.RESISTOR	
R452 R453	NRSA63D-104X	M.G.RESISTOR	100k 1/16W 1 100k 1/16W
R453 R454	NRSA63D-104X NRSA63D-104X	M.G.RESISTOR M.G.RESISTOR	100k 1/16W 100k 1/16W
R454 R455		M.G.RESISTOR	100k 1/16W
-	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R456 R457	NRSA63D-104X NRSA63D-104X	M.G.RESISTOR	100k 1/16VV
n45/	NN3A63D-104A	WI.G.NESISTON	100k 1/10VV
R458	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R459	NRSA63D-472X	M.G.RESISTOR	4.7k 1/16W
R460	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R462	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R463	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R464	NRSA63D-123X	M.G.RESISTOR	12k 1/16W
R465	NRSA63D-333X	M.G.RESISTOR	33k 1/16W
R466	NRSA63D-823X	M.G.RESISTOR	82k 1/16W
R467 R469	NRSA63D-104X NRSA63D-224X	M.G.RESISTOR M.G.RESISTOR	100k 1/16W 220k 1/16W
11403	NN3A03D-224X	W.G.NESISTON	220K 1/10VV
R470	NRSA63D-224X	M.G.RESISTOR	220k 1/16W
R471	NRSA63D-224X	M.G.RESISTOR	220k 1/16W
R476	NRSA63J-100X	M.G.RESISTOR	10 1/16W
R485	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R486	NRSA63D-334X	M.G.RESISTOR	330k 1/16W
R487	NRSA63D-220X	M.G.RESISTOR	22 1/16W
R488	NRSA63D-220X	M.G.RESISTOR	22 1/16W
R489	NRSA63D-471X	M.G.RESISTOR	470 1/16W
R491 R492	NRSA63D-104X NRSA63D-104X	M.G.RESISTOR M.G.RESISTOR	100k 1/16W 100k 1/16W
N492	NNSA63D-104A	M.G.RESISTOR	100k 1/10VV
R493	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R494	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R495	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R496	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R497	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R498	NRSA63D-104X	M.G.RESISTOR	100k 1/16W
R499	NRSA63D-471X	M.G.RESISTOR	470 1/16W
R501	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R502 R503	NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k 1/16W 10k 1/16W
11003	N113A03D-103A	W.G.NESISTON	171000
R504	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R505	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R506	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R601	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W (E)
R602	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W (E)
R603	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R604	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W (E)
R605	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W (E)
R701 R702	NRSA63D-104X NRSA63D-104X	M.G.RESISTOR M.G.RESISTOR	100k 1/16W 100k 1/16W
N/U2	NRSA63D-104X	W.G.NESISTON	100K 1/16VV
R703	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R704	NRSA63D-473X	M.G.RESISTOR	47k 1/16W
R705	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R706	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
R707	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R708	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R709	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R710	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R721 R722	NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k 1/16W 1 10k 1/16W
22			
R723	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R724	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R725	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R726	NRSA63D-122X	M.G.RESISTOR	1.2k 1/16W
R727	NRSA63D-122X	M.G.RESISTOR M.G.RESISTOR	1.2k 1/16W 33 1/16W
R728 R729	NRSA63D-330X NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R729	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R730 R731	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R751	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R752	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R753	NRSA63D-303X	M.G.RESISTOR M.G.RESISTOR	30k 1/16W 30k 1/16W
R754 R755	NRSA63D-303X NRSA63D-822X	M.G.RESISTOR	8.2k 1/16W
R756	NRSA63D-822X	M.G.RESISTOR	8.2k 1/16W
		1	1/1017

Symbol No.	Part No.	Part Name	Descri	otion
R757	NRSA63D-822X	M.G.RESISTOR	8.2k	1/16W
R758	NRSA63D-822X	M.G.RESISTOR	8.2k	1/16W
R759	NRSA63D-562X	M.G.RESISTOR	5.6k	1/16W
R760 R761	NRSA63D-103X NRSA63D-332X	M.G.RESISTOR M.G.RESISTOR	10k 3.3k	1/16VV 1/16VV
			3.3k	1/16W
R762 R763	NRSA63D-332X NRSA63D-473X	M.G.RESISTOR M.G.RESISTOR	47k	1/16W
R764	NRSA63D-473X	M.G.RESISTOR	47k	1/16W
R765	NRSA63D-220X	M.G.RESISTOR	22	1/16W
R766	NRSA63D-220X	M.G.RESISTOR	22	1/16W
R767	NRSA63D-122X	M.G.RESISTOR	1.2k	1/16W
R768	NRSA63D-122X	M.G.RESISTOR	1.2k 10k	1/16VV 1/16VV
R769 R770	NRSA63D-103X NRSA63D-473X	M.G.RESISTOR M.G.RESISTOR	47k	1/16VV
R771	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R772	NRSA63D-333X	M.G.RESISTOR	33k	1/16W
R773	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R775	NRSA63D-473X	M.G.RESISTOR	47k 10k	1/16W 1/16W
R777 R778	NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k	1/16W
R779	NRSA63D-103X	M.G.RESISTOR	100k	1/16W
R780	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R781	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R782	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R783	NRSA63D-104X	M.G.RESISTOR	100k	1/16W
R784	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R785	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R786 R787	NRSA63D-101X NRSA63D-101X	M.G.RESISTOR M.G.RESISTOR	100	1/16W 1/16W
R788	NRSA63D-101X	M.G.RESISTOR	10k	1/16W
R789	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R790	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R 79 1	NRSA63D-101X	M.G.RESISTOR	100	1/16W
R801 R802	NRSA63D-822X NRSA63D-822X	M.G.RESISTOR M.G.RESISTOR	8.2k 8.2k	1/16W 1/16W
R803	NRSA63D-182X	M.G.RESISTOR	1.8k	1/16W
R804	NRSA63D-182X	M.G.RESISTOR	1.8k	1/16W
R805	NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k 10k	1/16W 1/16W
R806 R807	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R808	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R809	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R810	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R811 R812	NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k 10k	1/16W 1/16W
R813	NRSA63D-103X	M.G.RESISTOR	10k	1/16 V V
R814	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R815	NRSA63D-330X	M.G.RESISTOR	33	1/16W
R816	NRSA63D-330X	M.G.RESISTOR	33 33	1/16 VV 1/16 VV
R817 R818	NRSA63D-330X NRSA63D-330X	M.G.RESISTOR M.G.RESISTOR	33	1/16 V V
R821	NRSA63D-473X	M.G.RESISTOR	47k	1/16W
R822	NRSA63D-473X	M.G.RESISTOR	47k	1/16 V V
R823	NRSA63D-220X	M.G.RESISTOR	22	1/16W
R824	NRSA63D-220X	M.G.RESISTOR	22	1/16 V V
R853 R854	NRSA63J-0R0X NRSA63J-0R0X	M.G.RESISTOR M.G.RESISTOR	0	1/16 VV 1/16 VV
R855	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W
R877	NRSA63J-0R0X	M.G.RESISTOR	o	1/16W
R879	NRSA63J-0R0X	M.G.RESISTOR	0	1/16 W
R901	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16₩ 1/16₩
R902 R903	NRSA63D-152X NRSA63D-153X	M.G.RESISTOR M.G.RESISTOR	1.5k 15k	1/16 V V
R904	NRSA63D-153X	M.G.RESISTOR	15k	1/16 W
R905	NRSA63D-223X	M.G.RESISTOR	22k	1/16W
R906	NRSA63D-223X	M.G.RESISTOR	22k	1/16W
R907 R908	NRSA63D-103X NRSA63D-103X	M.G.RESISTOR M.G.RESISTOR	10k 10k	1/16 W 1/16 W
R908	NRSA63D-103X	M.G.RESISTOR	24k	1/16 V
R910	NRSA63D-243X	M.G.RESISTOR	24k	1/16W
R911	NRSA63D-223X	M.G.RESISTOR	22k	1/16W
R912	NRSA63D-223X	M.G.RESISTOR	22k	1/16W 1/16W
R913	NRSA63D-101X	M.G.RESISTOR	100	1/10 **

[AUDIO&LCD]

Symbol No.	Part No.	Part Name	T	Description	Symbol No.	Part No.	Part Name		Description
R914	NRSA63D-101X	M.G.RESISTOR	100	1/16W	C41	NCB11CK-105X	CER.CAPACITOR	1	16V
R915	NRSA63D-101X	M.G.RESISTOR	120k	1/16W	C42	NCB11CK-105X	CER.CAPACITOR	1	16V
	NRSA63D-124X	M.G.RESISTOR	120k	1/16W	C61	NDC31HJ-101X	CER.CAPACITOR	100p	50V
R916	NRSA63D-124X		10k	1/16W	C62	NDC31HJ-101X	CER.CAPACITOR	100p	50V
R917		M.G.RESISTOR	10k	1/16W	C63	NDC31HJ-101X	CER.CAPACITOR	100p	50V
R918	NRSA63D-103X	M.G.RESISTOR						100p	50V
R921	NRSA63D-223X	M.G.RESISTOR	22k	1/16W	C64	NDC31HJ-101X	CER.CAPACITOR		50V
R922	NRSA63D-223X	M.G.RESISTOR	22k	1/16W	C65	NDC31HJ-330X	CER.CAPACITOR	33p	
R925	NRSA63D-561X	M.G.RESISTOR	560	1/16W	C66	NDC31HJ-330X	CER.CAPACITOR	33p	5 0 V
R926	NRSA63D-561X	M.G.RESISTOR	560	1/16W	i				
R927	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	C67	NCB31CK-104X	CER.CAPACITOR	0.1	16V
R928	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	C68	NCB31CK-104X	CER.CAPACITOR	0.1	16V
R931	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W	C69	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
,,,,,,,				1	C70	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
R932	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W	C71	NCB31CK-104X	CER.CAPACITOR	0.1	16V
	NRSA63D-393X	M.G.RESISTOR	39k	1/16W	C72	NCB31CK-104X	CER.CAPACITOR	0.1	16V
		M.G.RESISTOR	39k	1/16W	C73	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
	NRSA63D-393X			1/16W	C74	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
	NRSA63D-822X	M.G.RESISTOR	8.2k			NCB31CK-104X	CER.CAPACITOR	0.1	16V
R944	NRSA63D-822X	M.G.RESISTOR	8.2k	1/16W	C75			0.1	16V
R945	NRSA63J-105X	M.G.RESISTOR	1M	1/16W	C76	NCB31CK-104X	CER.CAPACITOR	0.1	100
R946	NRSA63J-105X	M.G.RESISTOR	1M	1/16W				l	4.007
R951	NRSA63D-113X	M.G.RESISTOR	11k	1/16W	C81	NCB31CK-104X	CER.CAPACITOR	0.1	16V
R952	NRSA63D-113X	M.G.RESISTOR	11k	1/16W	C82	NCB31CK-104X	CER.CAPACITOR	0.1	16V
	NRSA63D-912X	M.G.RESISTOR	9.1k	1/16W	C83	NFV41HJ-333X	FILM CAPACITOR	0.033	50V
					C84	NFV41HJ-333X	FILM CAPACITOR	0.033	50V
R954	NRSA63D-912X	M.G.RESISTOR	9.1k	1/16W	C85	NBE71CM-476X	TAN.CAPACITOR	47	16V
R955	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W	C86	NBE71CM-476X	TAN.CAPACITOR	47	16V
R956	NRSA63J-0R0X	M.G.RESISTOR	o	1/16W	C89	NDC31HJ-330X	CER.CAPACITOR	33p	50V
			10k	1/16W	C90	NDC31HJ-330X	CER.CAPACITOR	33p	50V
R961	NRSA63D-103X	M.G.RESISTOR			C90	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
R962	NRSA63D-103X	M.G.RESISTOR	10k	1/16W				4.7	25V
R963	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	C92	NBE41EM-475X	TAN.CAPACITOR	4.7	250
R964	NRSA63D-103X	M.G.RESISTOR	10k	1/16W			T		251
R965	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	C93	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
R966	NRSA63D-103X	M.G.RESISTOR	10k	1/16W	C94	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
R971	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C95	NCB31CK-104X	CER.CAPACITOR	0.1	16V
			Ţ		C96	NCB31CK-104X	CER.CAPACITOR	0.1	16V
R972	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C97	NCB31CK-104X	CER.CAPACITOR	0.1	16V
R973	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C98	NCB31CK-104X	CER.CAPACITOR	0.1	16V
R974	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C99	NDC31HJ-101X	CER.CAPACITOR	100p	50V
R981		M.G.RESISTOR	3.9k	1/16W	C100	NDC31HJ-101X	CER.CAPACITOR	100p	50V
	NRSA63D-392X			1/16W	C100	NCB11CK-105X	CER.CAPACITOR	1	16V
R982	NRSA63D-392X	M.G.RESISTOR	3.9k					1	16V
R985	NRSA63J-4R7X	M.G.RESISTOR	4.7	1/16W	C102	NCB11CK-105X	CER.CAPACITOR	'	104
R986	NRSA63D-123X	M.G.RESISTOR	12k	1/16W			TANIOADAGITOD		25V
R987	NRSA63J-0R0X	M.G.RESISTOR	0	1/16W	C103	NBE41EM-475X	TAN.CAPACITOR	4.7	
R988	NRSA63D-474X	M.G.RESISTOR	470k	1/16W	C104	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
R989	NRSA63D-560X	M.G.RESISTOR	56	1/16W	C105	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
1					C106	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
R990	NRS12BJ-681X	M.G.RESISTOR	680	1/2W	C107	NCB31CK-104X	CER.CAPACITOR	0.1	16V
R991	NRSA63D-104X	M.G.RESISTOR	100k	1/16W	C108	NCB31CK-104X	CER.CAPACITOR	0.1	16V
				·	C109	NCB31CK-104X	CER.CAPACITOR	0.1	16V
					C110	NCB31CK-104X	CER.CAPACITOR	0.1	16V
VR1	QVQ0162-A14	VAL.RESISTOR	10k	A1 REC LEVEL	C111	NDC31HJ-330X	CER.CAPACITOR	33p	50V
VR2		VAL.RESISTOR	10k	A2 REC LEVEL	C112	NDC31HJ-330X	CER.CAPACITOR	33p	50V
	QVQ0162-A14			AL HEO LEVEL	1 0112	1.15 33 11 10 330/	32,37,17,1011,011	1506	
	NVP1415-103X	TRIM.RESISTOR	10k	İ	C112	NENDILLA 105	N.P.CAPACITOR	1	50V
VH/32	NVP1415-103X	TRIM.RESISTOR	10k	j	C113	NEN21HM-105		1 '	50V
					C114	NEN21HM-105	N.P.CAPACITOR	1	
	l				C115	NBE61EM-226X	TAN.CAPACITOR	22	25V
C1	NDC31HJ-221X	CER.CAPACITOR	220p	50V	C116	NBE61EM-226X	TAN.CAPACITOR	22	25V
C2	NDC31HJ-221X	CER.CAPACITOR	220p	50V	C117	NBE51EM-106X	TAN.CAPACITOR	10	25V
C3	NDC31HJ-221X	CER.CAPACITOR	220p	50V [C118	NBE51EM-106X	TAN.CAPACITOR	10	25V
C4	NDC31HJ-221X	CER.CAPACITOR	220p	50V	C119	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C5	NDC31HJ-221X	CER.CAPACITOR	220p	50V	C120	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C6	NDC31HJ-221X	CER.CAPACITOR	220p	50V	C121	NDC31HJ-101X	CER.CAPACITOR	100p	50V
C7	NDC31HJ-221X	CER.CAPACITOR	220p	50V	C122	NDC31HJ-101X	CER.CAPACITOR	100p	50V
		CER.CAPACITOR		50V	0122	INDCSTITIO-TOTA	CEN.OAI ACTION	Гоор	•••
C8	NDC31HJ-221X	1	220p		C122	NIDEALCNA LOCK	TAN CARACITOR	10	16V
C11	NEH91HM-105X	E.CAPACITOR	1	50V	C123	NBE41CM-106X	TAN.CAPACITOR	10	16V
C12	NEH91HM-105X	E.CAPACITOR	1	50V	C124	NBE41CM-106X	TAN.CAPACITOR	10	
l _					C125	NDC31HJ-330X	CER.CAPACITOR	33p	50V
C13	NEH91HM-105X	E.CAPACITOR	1	50V	C126	NDC31HJ-330X	CER.CAPACITOR	33p	50V
C14	NEH91HM-105X	E.CAPACITOR	1	50V	C127	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C15	NEN21HM-475X	N.P.CAPACITOR	4.7	50V	C128	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C16	NEN21HM-475X	N.P.CAPACITOR	4.7	50V	C129	NCB31CK-104X	CER.CAPACITOR	0.1	1 6V
C17	NEN21HM-475X	N.P.CAPACITOR	4.7	50V	C130	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C18	NEN21HM-475X	N.P.CAPACITOR	4.7	50V	C131	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
C33		CER.CAPACITOR	0.1	16V	C131	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
	NCB31CK-104X				0132	NOLTILIVITY/OA	INV.SALASITOR	J-7. /	201
C34	NCB31CK-104X	CER.CAPACITOR	0.1	16V	0100	NIDEATENA AZEV	TANI CARACITOR	17	25V
C37	NCB31CK-104X	CER.CAPACITOR	0.1	16V	C133	NBE41EM-475X	TAN.CAPACITOR	4.7	
	UNICED DA OU A O AV	CER.CAPACITOR	0.1	16V	C134	NBE41EM-475X	TAN.CAPACITOR	4.7	25V
C38	NCB31CK-104X	0211.071171011011							
C38					C135	NBE41CM-106X	TAN.CAPACITOR	10	16V
	NCB11CK-104X	CER.CAPACITOR	1	16V	C135 C136	NBE41CM-106X NBE41CM-106X	TAN.CAPACITOR	10	16V
C38				16V 16V				1	

Symbol No.	Part No.	Part Name	Description	
C140	NDC31HJ-100X	CER.CAPACITOR	10p 50V	٦
C141	NEH60JM-107X	E.CAPACITOR	100 6.3V	- 1
C141	NEH60JM-107X	E.CAPACITOR	100 6.3V	
C142	\$	E.CAPACITOR	100 6.3V	- 1
	NEH60JM-107X			
C144	NEH60JM-107X	E.CAPACITOR	100 6.3V	
C145	NDC31HJ-100X	CER.CAPACITOR	10p 50V	
C146	NDC31HJ-100X	CER.CAPACITOR	10p 50V	
C147	NDC31HJ-101X	CER.CAPACITOR	100p 50V	-
C148	NDC31HJ-101X	CER.CAPACITOR	100p 50V	- 1
C149	NBE51CM-226X	TAN.CAPACITOR	22 16V	ı
C150	NBE51CM-226X	TAN.CAPACITOR	22 16V	
C151	NBE71CM-476X	TAN.CAPACITOR	47 16V	
C152	NBE71CM-476X	TAN.CAPACITOR	47 16V	
C153	NBE51EM-106X	TAN.CAPACITOR	10 25V	
C154	NBE51EM-106X	TAN.CAPACITOR	10 25V	
0455	NODO A OV GOOV	OFD OADA OITOD	0.000	
C155	NCB31CK-223X	CER.CAPACITOR	0.022 16V	١
C156	NCB31CK-223X	CER.CAPACITOR	0.022 16V	
C157	NDC31HJ-471X	CER.CAPACITOR	470p 50V	
C158	NDC31HJ-471X	CER.CAPACITOR	470p 50V	
C159	NBE41CM-106X	TAN.CAPACITOR	10 16V	
C160	NBE41CM-106X	TAN.CAPACITOR	10 16V	- 1
C161	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C162	NDC31HJ-330X	CER.CAPACITOR	33p 50V	- 1
C163	NCB11CK-105X	CER.CAPACITOR	1 16V	
C164	NCB11CK-105X	CER.CAPACITOR	1 16V	
C167	NEH91CM-476X	E.CAPACITOR	47 16V	
C168	NEH91CM-476X	E.CAPACITOR	47 16V	- 1
C171	NBE41CM-106X	TAN.CAPACITOR	10 16V	
C172	NBE41CM-106X	TAN.CAPACITOR	10 16V	- 1
				l
C177	NCB31CK-104X	CER.CAPACITOR	0.1 16V	1
C178	NCB31CK-104X	CER.CAPACITOR	0.1 16V	- 1
C179	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	- 1
C180	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	- 1
C181	NCB31CK-104X	CER.CAPACITOR	0.1 16V	1
C182	NCB31CK-104X	CER.CAPACITOR	0.1 16V	1
C183	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	1
C184	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	- 1
C185	NBE61EM-226X	TAN.CAPACITOR	22 25V	ı
C186	NBE71CM-476X	TAN.CAPACITOR	47 16V	
C187	NCB31CK-104X	CER.CAPACITOR	0.1 16V	ı
C188	NCB31CK-104X	CER.CAPACITOR	0.1 16V	ı
C188	NBE51AM-476X	TAN.CAPACITOR	47 10V	l
	NBE51AM-476X			
C190		TAN.CAPACITOR		
C191	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C192	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C193	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C194	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C301	NCB31CK-104X	CER.CAPACITOR	0.1 16V	- 1
C302	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C303	NCB31CK-104X	CER.CAPACITOR	0.1 16V	1
C304	NCB31CK-104X	CER.CAPACITOR	0.1 16V	I
C305	NCB11CK-105X	CER.CAPACITOR	1 16V	
C306	NCB11CK-105X	CER.CAPACITOR	1 16V	
C307	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	
C308	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	
C309	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	
C310	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	-
C311	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C312	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C313	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C314	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C315	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C316	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C317	NEN21HM-105	N.P.CAPACITOR	1 50V	
C318	NEN21HM-105	N.P.CAPACITOR	1 50V	
C319	NBE61EM-226X	TAN.CAPACITOR	22 25V	
C320	NBE61EM-226X	TAN.CAPACITOR	22 25V	
C321	NBE51EM-106X	TAN.CAPACITOR	10 25V	
C322	NBE51EM-106X	TAN.CAPACITOR	10 25V	
C323	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C324	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C325	NDC31HJ-101X	CER.CAPACITOR	100p 50V	
C326	NDC31HJ-101X	CER.CAPACITOR	100p 50V	
	150011.017	1 2 2 1 1 2 1 1 7 1 3 1 1 3 1 1		

Symbol No.	Part No.	Part Name	Description	_
C327	NBE41CM-106X	TAN.CAPACITOR	10 16V	
C328	NBE41CM-106X NDC31HJ-330X	TAN.CAPACITOR CER.CAPACITOR	10 16V 33p 50V	
C329 C330	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C331	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C332	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C333	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C334	NCB31CK-104X NBE41EM-475X	CER.CAPACITOR TAN.CAPACITOR	0.1 16V 4.7 25V	
C335 C336	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	
C337	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	
C338	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	
C339	NBE41CM-106X	TAN.CAPACITOR	10 16V	
C340 C343	NBE41CM-106X NDC31HJ-100X	TAN.CAPACITOR CER.CAPACITOR	10 16V 10p 50V	
C343	NDC31HJ-100X	CER.CAPACITOR	10p 50V	
C345	NEH60JM-107X	E.CAPACITOR	100 6.3V	
C346	NEH60JM-107X	E.CAPACITOR	100 6.3V	
C347	NEH60JM-107X	E.CAPACITOR	100 6.3V 100 6.3V	
C348 C349	NEH60JM-107X NDC31HJ-100X	E.CAPACITOR CER.CAPACITOR	10p 50V	
C350	NDC31HJ-100X	CER.CAPACITOR	10p 50V	
C351	NDC31HJ-101X	CER.CAPACITOR	100p 50V	
C352	NDC31HJ-101X	CER.CAPACITOR	100p 50V 22 16V	
C353 C354	NBE51CM-226X NBE51CM-226X	TAN.CAPACITOR TAN.CAPACITOR	22 16V	
C355	NBE71CM-476X	TAN.CAPACITOR	47 16V	
C356	NBE71CM-476X	TAN.CAPACITOR	47 16V	
C357	NBE51EM-106X NBE51EM-106X	TAN.CAPACITOR TAN.CAPACITOR	10 25V 10 25V	
C358 C359	NCB31CK-223X	CER.CAPACITOR	0.022 16V	
C360	NCB31CK-223X	CER.CAPACITOR	0.022 16V	
C361	NDC31HJ-471X	CER.CAPACITOR	470p 50V	
C362 C363	NDC31HJ-471X NBE41CM-106X	CER.CAPACITOR TAN.CAPACITOR	470p 50V 10 16V	
C364	NBE41CM-106X	TAN.CAPACITOR	10 16V	
C365	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C366 C367	NDC31HJ-330X NCB11CK-105X	CER.CAPACITOR CER.CAPACITOR	33p 50V 1 16V	
C368	NCB11CK-105X	CER.CAPACITOR	1 16V	
C371	NBE41CM-106X	TAN.CAPACITOR	10 16V	
C372	NBE41CM-106X	TAN.CAPACITOR	10 16V	
C377	NCB11CK-105X	CER.CAPACITOR CER.CAPACITOR	1 16V 1 16V	
C378 C379	NCB11CK-105X NCB11CK-105X	CER.CAPACITOR	1 16V	
C380	NCB11CK-105X	CER.CAPACITOR	1 16V	
C381	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	
C382	NBE41EM-475X NCB31CK-104X	TAN.CAPACITOR CER.CAPACITOR	4.7 25V 0.1 16V	
C383 C384	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C385	NBE41EM-475X	TAN.CAPACITOR	4.7 25 ∨	
C386	NBE41EM-475X	TAN.CAPACITOR	4.7 25V	
C387	NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	0.1 16V 0.1 16V	
C388 C389	NCB31CK-104X NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C390	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C391	NBE61EM-226X	TAN.CAPACITOR	22 25V	
C392	NBE71CM-476X	TAN.CAPACITOR	47 16V 47 10V	
C393 C394	NBE51AM-476X NBE51AM-476X	TAN.CAPACITOR TAN.CAPACITOR	47 10V	
C395	NDC31HJ-330X	CER.CAPACITOR	33p 50V	
C396	NDC31HJ-330X	CER.CAPACITOR	33p 50 ∨	
C397	NDC31HJ-330X	CER.CAPACITOR	33p 50V 33p 50V	
C398 C401	NDC31HJ-330X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	33p 50V 0.1 16V	
C402	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C403	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C409 C410	NBE51AM-476X NCB31CK-104X	TAN.CAPACITOR CER.CAPACITOR	47 10V 0.1 16V	
C410	NCB10JM-335X	CER.CAPACITOR	3.3 6.3V	
C412	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
C413	NCB31CK-104X	CER.CAPACITOR	0.1 16V	
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Symbol No.	Part No.	Part Name	Descri	otion
C414	NEH91CM-476X	E.CAPACITOR	47	16V
C415	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C416	NCB31HK-122X	CER.CAPACITOR	1200p	50V
C417	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C418	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C419	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C420	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C421	NDC31HJ-331X	CER.CAPACITOR	330p	50V
C422	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C431	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C432	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C433	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C434	NCB11CK-105X	CER.CAPACITOR	1	16V
C435	NEH91CM-106X	E.CAPACITOR	0.1	16V 16V
C436 C437	NCB31CK-104X QEZ0243-22A	CER.CAPACITOR E.CAPACITOR	0.1	100
C437	NEH91CM-106X	E.CAPACITOR	10	16V
C438	NCF21CZ-334X	CER.CAPACITOR	0.33	16V
C440	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C442	NCB10JM-335X	CER.CAPACITOR	3.3	6.3V
C444	NEH91EM-336X	E.CAPACITOR	33	25V
C446	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C447	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C448	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C449	NDC31HJ-180X	CER.CAPACITOR	18p	50V
C450	NDC31HJ-150X	CER.CAPACITOR	15p	50V
C451	NDC31HJ-150X	CER.CAPACITOR	15p	50V
C452	NDC31HJ-150X	CER.CAPACITOR	15p	50V
C701	NBE41CM-106X	TAN.CAPACITOR	10	16V
C702	NBE41CM-106X	TAN.CAPACITOR	10	16V
C711	NDC31HJ-101X	CER.CAPACITOR	100p	50V
C712	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C713	NDC31HJ-101X	CER.CAPACITOR	100p	50V
C739	NDC31HJ-680X	CER.CAPACITOR	68p	50V
C740	NDC31HJ-680X	CER.CAPACITOR	68p	50V
C741	NCB31HK-102X	CER.CAPACITOR	1000p	50V
C742	NCB31HK-102X	CER.CAPACITOR	1000p	50V
C743	NDC31HJ-101X	CER.CAPACITOR	100p	50V
C744 C745	NDC31HJ-101X NBE51EM-106X	CER.CAPACITOR TAN.CAPACITOR	100p 10	50V 25V
C746	NDESIEM 106V	TAN.CAPACITOR	10	25V
C746 C747	NBE51EM-106X NBE51EM-106X	TAN.CAPACITOR	10	25V
C748	NBE51EM-106X	TAN.CAPACITOR	10	25V
C748	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C750	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C751	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C752	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C755	NCB31HK-222X	CER.CAPACITOR	2200p	50V
C757	NBE61EM-226X	TAN.CAPACITOR	22	25V
C758	NBE61EM-226X	TAN.CAPACITOR	22	25V
C759	NBE51EM-106X	TAN.CAPACITOR	10	25V
C774	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C775	NCB31HK-102X	CER.CAPACITOR	1000p	50V
C801	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C802	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C803	NBE51EM-106X	TAN.CAPACITOR	10	25V
C804	NBE51EM-106X	TAN.CAPACITOR	10	25V
C805	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C806 C807	NCB31CK-104X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR	0.1	16V 16V
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C808 C809	NCB31CK-104X NBE51EM-106X	CER.CAPACITOR	0.1	16V 25V
C810	NBE51EM-106X	TAN.CAPACITOR	10	25V
C811	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C812	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C813	NBE51EM-106X	TAN.CAPACITOR	10	25V
C814	NBE51EM-106X	TAN.CAPACITOR	10	25V
C815	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C816 C817	NCB31CK-104X NBE51CM-226X	CER.CAPACITOR TAN.CAPACITOR	0.1 22	16V 16V
C818	NEH91EM-336X	E.CAPACITOR	33	25V
C851	NDC31H ⊩330V			nin
C851 C852	NDC31HJ-330X NDC31HJ-330X	CER.CAPACITOR CER.CAPACITOR	33p 33p	50V 50V

Symbol No.	Part No.	Part Name	Descri	ption
C853	NDC31HJ-330X	CER.CAPACITOR	33p	50V
C854	NDC31HJ-330X	CER.CAPACITOR	33p	50V
C855	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C856	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C857	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C858	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C861	NBE51EM-106X	TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR	10	25V
C862	NBE51EM-106X		10	25V
C863	NBE51EM-106X		10	25V
C864	NBE51EM-106X	TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	10	25V
C865	NCB31CK-104X		0.1	16V
C866	NCB31CK-104X		0.1	16V
C867	NCB31CK-104X		0.1	16V
C868	NCB31CK-104X		0.1	16V
C901	NBE41CM-106X	TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR	10	16V
C902	NBE41CM-106X		10	16V
C903	NCB11CK-105X		1	16V
C904	NCB11CK-105X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR	1	16V
C905	NCB11CK-105X		1	16V
C906	NCB11CK-105X		1	16V
C907	NBE41EM-475X		4.7	25V
C908	NBE41EM-475X		4.7	25V
C909	NBE41EM-475X		4.7	25V
C910	NBE41EM-475X		4.7	25V
C911	NDC31HJ-821X		820p	50V
C912	NDC31HJ-821X		820p	50V
C913	NBE41EM-475X		4.7	25V
C914 C915 C916 C917 C918 C919 C920 C921 C922 C923	NBE41EM-475X NDC31HJ-680X NDC31HJ-680X NBE71CM-476X NBE71CM-476X NBE71CM-476X NBE71CM-476X NFV41HJ-273X NFV41HJ-273X NBE61EM-226X	TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR FILM CAPACITOR FILM CAPACITOR TAN.CAPACITOR	4.7 68p 68p 47 47 47 47 0.027 0.027 22	25V 50V 50V 16V 16V 16V 50V 50V 25V
C924 C925 C926 C927 C928 C929 C930 C931 C932 C933	NBE61EM-226X NBE21CM-475X NBE21CM-475X NCB31CK-104X NCB31CK-104X NCB31CK-104X NCB31CK-104X NCB31CK-104X NBE41EM-475X NBE41EM-475X NCB31CK-104X	TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR TAN.CAPACITOR CER.CAPACITOR	22 4.7 4.7 0.1 0.1 0.1 4.7 4.7 0.1	25V 16V 16V 16V 16V 16V 25V 25V
C934 C935 C936 C937 C938 C941 C942 C943 C944 C947	NCB31CK-104X NDC31HJ-101X NDC31HJ-101X NCB11CK-105X NCB11CK-105X NBE41CM-106X NBE41CM-106X NBE41CM-226X NBE51CM-226X NBE51CM-226X NFV41HJ-222X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR FILM CAPACITOR	0.1 100p 100p 1 1 1 10 10 22 22 2200p	16V 50V 50V 16V 16V 16V 16V 16V 16V 50V
C948 C949 C950 C951 C952 C953 C954 C955 C956 C957	NFV41HJ-222X NCB11CK-105X NCB11CK-105X NBE41EM-475X NBE41EM-475X NBE41EM-475X NBE41EM-475X NCB31CK-104X NCB31CK-104X NCB31CK-104X	FILM CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	2200p 1 1 4.7 4.7 4.7 4.7 0.1 0.1	50V 16V 16V 25V 25V 25V 25V 16V 16V
C958	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C961	NDC31HJ-181X	CER.CAPACITOR	180p	50V
C962	NDC31HJ-181X	CER.CAPACITOR	180p	50V
C963	NDC31HJ-561X	CER.CAPACITOR	560p	50V
C964	NFV41HJ-823X	FILM CAPACITOR	0.082	50V
C965	NFV41HJ-823X	FILM CAPACITOR	0.082	50V

Symbol No.	Part No.	Part Name	Description
C966 C967 C968 C971	NCB31HK-392X NBE51EM-106X NBE61EM-226X NCB11CK-105X	CER.CAPACITOR TAN.CAPACITOR TAN.CAPACITOR CER.CAPACITOR	3900p 50V 10 25V 22 25V 1 16V
C972 C973 C974 C975 C976 C981 C982	NCB11CK-105X NDC31HJ-330X NDC31HJ-330X NDC31HJ-330X NDC31HJ-330X NDC31HJ-330X NDC31HJ-330X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	1 16V 33p 50V 33p 50V 33p 50V 33p 50V 33p 50V 33p 50V 33p 50V
L1 L2 L3 L4 L401 L403 L404 L405 L801 L802	NQL124J-100X NQL124J-100X NQL124J-100X NQL124J-100X NQL114K-100X NQL114K-100X NQL114K-100X NQL114K-100X NQL114K-100X NQL114K-220X NQL114K-220X	COIL COIL COIL COIL COIL COIL COIL COIL	10uH 10uH 10uH 10uH 10uH 10uH 10uH 10uH
L803 L804 L805 L806 L807 L808 L809 L810	NQL114K-100X NQL114K-100X NQL114K-220X NQL114K-220X NQL114K-220X NQL114K-220X NQL114K-220X NQL114K-220X	COIL COIL COIL COIL COIL COIL COIL COIL	10uH 10uH 22uH 22uH 22uH 22uH 22uH 22uH 22uH
LC801	PGZ01972Z	LC FILTER	LC801-810
X401 X402	NAX0065-001X NAX0074-001X	CRYSTAL CRYSTAL	4.9152MHz 32.768MHz
\$1 \$2 \$301 \$302 \$303 \$401 \$402 \$403 \$404 \$405	QSW0334-001 QSW0334-001 QSW0334-001 QSW0334-001 QSW0334-001 QSW0334-001 QSW0334-001 QSW0334-001 QSW0334-001	SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH SLIDE SWITCH	ALC A1 ALC A2 ALC M1 ALC M2 3PIN MIC SW (E) LIGHT REGEN/PRESET FREE/REC OPTION/TC UB/TC/CTL
S406 S407 S408 S409 S410 S411 S412	NSW0005-001X NSW0005-001X NSW0005-001X NSW0005-001X NSW0005-001X NSW0005-001X QSW0334-001	TACT SWITCH TACT SWITCH TACT SWITCH TACT SWITCH TACT SWITCH TACT SWITCH SLIDE SWITCH	HOLD SHIFT ADVANCE PRESET RESET MENU DA1/2 DA3/4
CN15 CN30 CN31 CN33 CN35 CN36 CN37 CN38 CN39 CN40	QGA1201F2-12X QGF1012F1-10X QGA1201F2-09X QGA1501F2-06W QGA1201F2-05X QGA1201F2-05X QGA1501F2-04W QGA1501F2-02W QGA1201F2-05X QGA1201F2-05X	CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR	12PIN 10PIN 9PIN 6PIN 5PIN 5PIN 4PIN 2PIN 5PIN 3PIN
CN42 CN43 CN44 CN45 CN55	QGA1201F2-10X QGF1012F1-18X QGF1012F1-14X QGA1201F2-04X PGZ01932-012Z	CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR	10PIN 18PIN 14PIN 4PIN 12PIN

Symbol No.	Part No.	Part Name	Description
TP1	NNZ0009-001X	TEST POINT	TP1-911
K1 K401 T901	NQR0292-001X PGZ00627Z NQR0185-001X	FERAITE BEAD FERRATE BEADS BIAS OSC COIL	K1-4,701 K401-407
TB1 TB2	SQMX002-001Z PGZ02228	TERMINAL EARTH LUG	TB1,401
SP1	SC43656-095	LED SPACER	FOR LD401
PW1	SCK2571-01-N1A	AUDIO-SUB BOARD ASSEMBLY	(U)
R1	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
CN101	QGA1201F2-06X	CONNECTOR	6PIN (U)

production.

6.9 PR BOARD ASSEMBLY PARTS LIST 09

SCK2535-01-00A 09 09

Symbol	Part No.	Part Name	Descripti	on
No.		10.44		
IC101	AN3730FA	I.C.(M)	MATSUSHITA	
IC201	AN3730FA	I.C.(M)	MATSUSHITA	1
IC202	AN77L03M-X	I.C.(M)	MATSUSHITA	1
IC203	DS90LV032TM-X	I.C.(M)	NATIONAL SEMI	co
IC204	TC74VHC4040FT-X	I.C.(M)	TOSHIBA	
IC205	TC74VHC153FT-X	I.C.(M)	TOSHIBA	
10200	10744110100117	1.0.(177)		1
				1
Q101	XN4504-W	TRANSISTOR	MATSUSHITA	i
Q102	2SA1462/3-4/-X	TRANSISTOR	NEC	
Q103	2SC3937-X	TRANSISTOR	MATSUSHITA	į
Q104	XN4504-W	TRANSISTOR	MATSUSHITA	ŀ
		TRANSISTOR	NEC	
Q105	2SA1462/3-4/-X		MATSUSHITA	
Q106	2SC3937-X	TRANSISTOR		
Q201	XN4504-W	TRANSISTOR	MATSUSHITA	
Q202	2SA1462/3-4/-X	TRANSISTOR	NEC	
Q203	2SC3937-X	TRANSISTOR	MATSUSHITA	
Q204	XN4504-W	TRANSISTOR	MATSUSHITA	
_				
Q205	2SA1462/3-4/-X	TRANSISTOR	NEC	
Q206	2SC3937-X	TRANSISTOR	MATSUSHITA	
Q209	2SA1577/QR/-X	TRANSISTOR	ROHM	1
Q210	DTC114EUA-X	TRANSISTOR	ROHM	1
Q301	2SK621-X	FET	MATSUSHITA	
Q302	2SK621-X	FET	MATSUSHITA	
Q303	2SA1037AK/QR/-X	TRANSISTOR	ROHM	
Q304	2SA1037AK/QR/-X	TRANSISTOR	ROHM	
Q305	2SC3735/4-5/-X	TRANSISTOR	NEC	
Q306	2SC3735/4-5/-X	TRANSISTOR	NEC	
0000	2000700,10,7			
Q307	2SC3735/4-5/-X	TRANSISTOR	NEC	
Q308	2SC3735/4-5/-X	TRANSISTOR	NEC	i
R101	NRSA63D-202X	M.G.RESISTOR	2k	1/16W
R102	NRSA63D-682X	M.G.RESISTOR		1/16W
R103	NRSA63D-182X	M.G.RESISTOR		1/16W
R104	NRSA63D-561X	M.G.RESISTOR		1/16W
R106	NRSA63D-102X	M.G.RESISTOR		1/16W
		M.G.RESISTOR		1/16W
R107	NRSA63D-331X			1/16W
R108	NRSA63D-102X	M.G.RESISTOR		
R109	NRSA63D-152X	M.G.RESISTOR		1/16W
R110	NRSA63D-152X	M.G.RESISTOR		1/16W
R111	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16W
R112	NRSA63D-153X	M.G.RESISTOR	15k	1/16W ·
R113	NRSA63D-681X	M.G.RESISTOR		1/16W
R116	NRSA63D-681X	M.G.RESISTOR		1/16W
R117	NRSA63D-152X	M.G.RESISTOR		1/16W
		M.G.RESISTOR		1/16W
R118	NRSA63D-153X	M.G.RESISTOR		1/16W
R119	NRSA63D-152X			1/16W
R120	NRSA63D-152X	M.G.RESISTOR		
R121	NRSA63D-102X	M.G.RESISTOR		1/16W 1/16W
R122	NRSA63D-331X	M.G.RESISTOR		1/16VV 1/16W
R123	NRSA63D-102X	M.G.RESISTOR	1k	1,1000
R126	NRSA63D-103X	M.G.RESISTOR	10k	1/16W
R127	NRSA63D-272X	M.G.RESISTOR		1/16W
R128	NRSA63D-223X	M.G.RESISTOR		1/16W
R129	NRSA63D-222X	M.G.RESISTOR		1/16W
R131	NRSA63D-221X	M.G.RESISTOR		1/16W
				1/16W
R132	NRSA63D-221X	M.G.RESISTOR	1	
R135	NRSA63D-151X	M.G.RESISTOR		1/16W 1/16W
R138	NRSA63D-151X	M.G.RESISTOR		•
R201	NRSA63D-202X	M.G.RESISTOR	2k	1/16W
R202	NRSA63D-682X	M.G.RESISTOR	6.8k	1/16W
R203	NRSA63D-182X	M.G.RESISTOR	1.8k	1/16W
R204	NRSA63D-182X	M.G.RESISTOR	560	1/16W
R204		M.G.RESISTOR	1k	1/16W
	NRSA63D-102X			1/16W
R207	NRSA63D-331X	M.G.RESISTOR	330	
R208	NRSA63D-102X	M.G.RESISTOR	1k	1/16W
R209	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16W
R210	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16W
R211	NRSA63D-152X	M.G.RESISTOR	1.5k	1/16W
R212	NRSA63D-153X	M.G.RESISTOR	15k	1/16W
R213	NRSA63D-681X	M.G.RESISTOR	680	1/16W
D016	NDC A COD COSS	M C BECICTOR	690	1/16\\/
R216 R217	NRSA63D-681X	M.G.RESISTOR M.G.RESISTOR	680 1.5k	1/16W 1/16W
11217	NRSA63D-152X	IVI.G.NESISTON	1.00	1/1000

Symbol No.	Part No.	Part Name	Description
R218	NRSA63D-153X	M.G.RESISTOR	15k 1/16W
R219	NRSA63D-152X	M.G.RESISTOR	1.5k 1/16W
R220	NRSA63D-152X	M.G.RESISTOR	1.5k 1/16W
R221	NRSA63D-102X	M.G.RESISTOR	1k 1/16W 330 1/16W
R222	NRSA63D-331X	M.G.RESISTOR M.G.RESISTOR	330 1/16W 1k 1/16W
R223 R226	NRSA63D-102X NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R227	NRSA63D-272X	M.G.RESISTOR	2.7k 1/16W
R228	NRSA63D-223X	M.G.RESISTOR	22k 1/16W
R229	NRSA63D-222X NRSA63D-221X	M.G.RESISTOR M.G.RESISTOR	2.2k 1/16W 220 1/16W
R231 R232	NRSA63D-221X NRSA63D-221X	M.G.RESISTOR	220 1/16W
R235	NRSA63D-151X	M.G.RESISTOR	150 1/16W
R238	NRSA63D-151X	M.G.RESISTOR	150 1/16W
R240	NRSA63D-332X	M.G.RESISTOR	3.3k 1/16W 1.5k 1/16W
R241 R244	NRSA63D-152X NRSA63D-121X	M.G.RESISTOR M.G.RESISTOR	1.5k 1/16W 120 1/16W
R245	NRSA63D-121X	M.G.RESISTOR	100 1/16W
R246	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R247	NRSA63D-121X	M.G.RESISTOR	120 1/16W
R248	NRSA63D-101X	M.G.RESISTOR	100 1/16W 100 1/16W
R249 R250	NRSA63D-101X NRSA63D-121X	M.G.RESISTOR M.G.RESISTOR	120 1/16W
R251	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R252	NRSA63D-101X	M.G.RESISTOR	100 1/16W
R254	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R255 R256	NRSA63D-680X NRSA63D-680X	M.G.RESISTOR M.G.RESISTOR	68 1/16W 68 1/16W
R257	NRSA63D-680X	M.G.RESISTOR	68 1/16W
R258	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R259	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R260	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R261	NRSA63D-102X	M.G.RESISTOR M.G.RESISTOR	1k 1/16W 1k 1/16W
R262 R263	NRSA63D-102X NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R264	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R265	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R266	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R267	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R268	NRSA63D-102X	M.G.RESISTOR	1/16W 1/16W
R270 R271	NRSA63D-102X NRSA63D-102X	M.G.RESISTOR M.G.RESISTOR	11k 1/16W 11k 1/16W
R274	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R275	NRSA63D-102X	M.G.RESISTOR	1k 1/16W
R282	NRSA63J-100X	M.G.RESISTOR	10 1/16W
R301	NRSA63D-223X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR	22k
R302 R303	NRSA63D-682X	M.G.RESISTOR	6.8k 1/16W
R304	NRSA63D-682X	M.G.RESISTOR	6.8k 1/16W
R305	NRSA63D-150X	M.G.RESISTOR	15 1/16W 15 1/16W
R306 R307	NRSA63D-150X NRSA63D-272X	M.G.RESISTOR M.G.RESISTOR	15 1/16W 2.7k 1/16W
R307	NRSA63D-272X	M.G.RESISTOR	2.7k 1/16W
R309	NRSA63D-560X	M.G.RESISTOR	56 1/16W
R310	NRSA63D-560X	M.G.RESISTOR	56 1/16W
R311	NRSA63D-560X	M.G.RESISTOR	56 1/16W
R312 R313	NRSA63D-560X NRSA63D-272X	M.G.RESISTOR M.G.RESISTOR	56 1/16W 2.7k 1/16W
R314	NRSA63D-272X	M.G.RESISTOR	2.7k 1/16W
R315	NRSA63D-471X	M.G.RESISTOR	470 1/16W
R316	NRSA63D-471X	M.G.RESISTOR	470 1/16W
R317	NRSA63D-390X	M.G.RESISTOR	39 1/16W 39 1/16W
R318 R319	NRSA63D-390X NRSA63D-471X	M.G.RESISTOR M.G.RESISTOR	39 1/16W 470 1/16W
R319	NRSA63D-471X	M.G.RESISTOR	470 1/16W
R323	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R324	NRSA63D-103X	M.G.RESISTOR	10k 1/16W
R325	NRSA63J-0R0X	M.G.RESISTOR	0 1/16W
C101	NCB31HK-103X	CER.CAPACITOR	0.01 50V
C101	NCB31EK-223X	CER.CAPACITOR	0.022 25V
C103	NCB31HK-152X	CER.CAPACITOR	1500p 50V
C104	NDC31HJ-3R0X	CER.CAPACITOR	3p 50V

Symbol No.	Part No.	Part Name	Description	n
C105	NCB31HK-102X	CER.CAPACITOR	1000p	50V
C106	NCB31HK-102X	CER.CAPACITOR	1000p	50V
C107	NCB31HK-102X	CER.CAPACITOR		50V
C108	NCB31HK-102X	CER.CAPACITOR		50V
C109	NCB31HK-102X	CER.CAPACITOR		50V
C110	NCB10JM-335X	CER.CAPACIT.OR	3.3	5.3V
C112	NDC31HJ-151X	CER.CAPACITOR		50V
C113	NCB31CK-104X	CER.CAPACITOR		16V
C114	NBE21EM-105X	TAN.CAPACITOR	1	25V
C116	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C117	NDC31HJ-330X	CER.CAPACITOR	33p	50V
C118	NBE21AM-106X	TAN.CAPACITOR	10	10V
C119	NCB31HK-152X	CER.CAPACITOR		50V
C120	NBE21AM-106X	TAN.CAPACITOR		10V
C121	NCB31HK-152X	CER.CAPACITOR		50V
C122	NDC31HJ-330X	CER.CAPACITOR		50V
C123	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C124	NBE21EM-105X	TAN.CAPACITOR		25V
C125	NCB31CK-104X	CER.CAPACITOR		16V
C126	NDC31HJ-151X	CER.CAPACITOR		50V
C128	NCB10JM-335X	CER.CAPACITOR		5.3V
C129	NCB10JM-335X	CER.CAPACITOR		6.3V
				16V
C131	NCB31CK-104X	CER.CAPACITOR		
C132	NCB31HK-122X	CER.CAPACITOR		50V
C133 C134	NCB31HK-122X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR		50V 16V
				50V
C135	NDC31HJ-681X	CER.CAPACITOR		
C136	NDC31HJ-470X	CER.CAPACITOR		50V
C137	NCB10JM-335X	CER.CAPACITOR		5.3V
C139	NCB31CK-104X	CER.CAPACITOR		16V
C140	NCB31CK-104X	CER.CAPACITOR		16V
C141	NCB10JM-335X	CER.CAPACITOR	3.3	3.3V
C156	NDC31HJ-470X	CER.CAPACITOR	47p	50V
C201	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C202	NCB31EK-223X	CER.CAPACITOR		25V
C203	NCB31HK-152X	CER.CAPACITOR		50V
C204	NDC31HJ-3R0X	CER.CAPACITOR	3p	50V
C204	NCB31HK-102X	CER.CAPACITOR		50V
C206	NCB31HK-102X	CER.CAPACITOR		50V
C207	NCB31HK-102X	CER.CAPACITOR		50V 50V
		CER.CAPACITOR		50V 50V
C208	NCB31HK-102X		p	
C209	NCB31HK-102X	CER.CAPACITOR		50V
C210	NCB10JM-335X	CER.CAPACITOR		5.3V
C212	NDC31HJ-151X	CER.CAPACITOR	P	50V
C213	NCB31CK-104X	CER.CAPACITOR		16V
C214	NBE21EM-105X	TAN.CAPACITOR	1	25V
C216	NCB31HK-103X	CER.CAPACITOR		50V
C217	NDC31HJ-330X	CER.CAPACITOR		50V
C218	NBE21AM-106X	TAN.CAPACITOR	10	10V
C219	NCB31HK-152X	CER.CAPACITOR	1500p	50V
C220	NBE21AM-106X	TAN.CAPACITOR	10	10V
C221	NCB31HK-152X	CER.CAPACITOR	1500p	50V
C222	NDC31HJ-330X	CER.CAPACITOR	33p	50V
C223	NCB31HK-103X	CER.CAPACITOR	0.01	50V
C224	NBE21EM-105X	TAN.CAPACITOR	1	25V
C225	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C226	NDC31HJ-151X	CER.CAPACITOR	150p	50V
C228	NCB10JM-335X	CER.CAPACITOR		5.3V
		CER.CAPACITOR		6.3V
C229	NCB10JM-335X			
C231	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C232	NCB31HK-122X	CER.CAPACITOR	1200p	50V
C233	NCB31HK-122X	CER.CAPACITOR	1200p	50V
C234	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C235	NDC31HJ-681X	CER.CAPACITOR	680p	50V
C236 C237	NDC31HJ-470X NCB10JM-335X	CER.CAPACITOR CER.CAPACITOR	47p 3.3	50V 6.3V
C23/	NCD IOUNF333A	CEN.CAFACITOR		
		LCED CADACITOR	0.1	16V
C239	NCB31CK-104X	CER.CAPACITOR	0.1	161/
C240	NCB31CK-104X	CER.CAPACITOR	0.1	16V
C240 C241	NCB31CK-104X NCB10JM-335X	CER.CAPACITOR CER.CAPACITOR	3.3	6.3V
C240 C241 C244	NCB31CK-104X NCB10JM-335X NBE41CM-106X	CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR	3.3 10	6.3V 16V
C240 C241 C244 C245	NCB31CK-104X NCB10JM-335X NBE41CM-106X NCB31CK-104X	CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR CER.CAPACITOR	3.3 10 0.1	6.3V 16V 16V
C240 C241 C244	NCB31CK-104X NCB10JM-335X NBE41CM-106X	CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR	3.3 10 0.1 10	6.3V 16V

Part No.	Part Name	Description
NCB31CK-104X NCB31CK-104X NCB31HK-102X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	0.1 16V 0.1 16V 1000p 50V
NCB31HK-102X NDC31HG-101X NDC31HG-101X NDC31HG-101X NDC31HJ-470X NCB31HK-102X NCB31HK-102X NCB31HK-102X NDC31HJ-221X NDC31HJ-221X NDC31HJ-121X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	1000p 50V 100p 50V 100p 50V 100p 50V 47p 50V 1000p 50V 1000p 50V 220p 50V 220p 50V 120p 50V
NDC31HJ-121X NCB31HK-103X NCB31HG-100X NDC31HG-100X NDC31HG-100X NDC31HG-100X NDC31HG-100X NDC31HG-100X NDC31HG-100X NDC31HG-100X NCB31HK-103X	CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	120p 50V 0.01 50V 0.01 50V 10p 50V 10p 50V 10p 50V 10p 50V 10p 50V 10p 50V 10p 50V 10p 50V
NQL124J-220X NQL124M-1R0X NQL124J-220X NQL124M-1R0X NQL124J-220X NQL124M-1R0X NQL124J-220X NQL124M-1R0X NQL124M-1R0X NQL124M-1R0X NQL124M-1R0X	COIL COIL COIL COIL COIL COIL COIL COIL	22uH 1uH 22uH 1uH 22uH 1uH 1uH 1uH 1uH
NQL124M-1R0X NQL124M-1R0X	COIL COIL	1uH 1uH
PGZ02149-002Z SSV2615-14 SSV2615-28 QGF0503F3-18X	CONNECTOR CONNECTOR CONNECTOR CONNECTOR	2PIN 14PIN 28PIN 18PIN
NNZ0009-001X	TEST POINT	TP204,205,209
PGZ00627Z PGZ01823-121AZ	FERRATE BEADS EMI FILTER	K101-301 K303-306
SSV0779	TERMINAL	
	NCB31CK-104X NCB31CK-104X NCB31HK-102X NCB31HK-102X NDC31HG-101X NDC31HG-101X NDC31HG-101X NDC31HG-101X NDC31HJ-470X NCB31HK-102X NCB31HK-102X NCB31HJ-221X NDC31HJ-221X NDC31HJ-121X NDC31HJ-121X NDC31HJ-121X NCB31HK-103X NDC31HG-100X NDC31	NCB31CK-104X NCB31CK-104X NCB31HK-102X CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR NDC31HG-101X CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR NDC31HJ-221X CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR NDC31HJ-121X CER.CAPACITOR COIL COIL NOL124J-220X NOL124M-1R0X COIL NONECTOR CON

6.10 MT BOARD ASSEMBLY PARTS LIST 1 0 SCK2536-01-00A 1 0 ...

Symbol No.	Part No.	Part Name	Description
D1 D2 D3	MA143A-X MA143A-X MA143A-X	DIODE DIODE DIODE	MATSUSHITA MATSUSHITA MATSUSHITA
VR1	QVQ0029-B53	VAL.RESISTOR	5k, TRACKING VR
CN2 CN9 CN11 CN12 CN13 CN14 CN15 CN16 CN18 CN19	QGA1201F2-09X QGA1201F2-08X SCV0502-001 QGA1201F2-07X QGA1201F2-14X QGA1201F2-13X QGA1201F2-15X QGA1201F2-15X QGA2501F1-02 QGA2501F1-05	CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR	9PIN 8PIN 1PIN 7PIN 14PIN 13PIN 12PIN 15PIN 2PIN 5PIN
K1	SCV2662-027	FERRITE BEADS	K1-6
TB1	PGZ02228	EARTH LUG	TB1,2

6.11 LCD SUB BOARD ASSEMBLY PARTS LIST 11 SCK2536-02-00A 11

Symbol No.	Part No.	Part Name	Description
IC1	NJU6433FB2	I.C.(M)	JRC
R1 R2 R3 R4 R5 R6 R7	NRSA63D-334X NRSA63D-331X NRSA63D-331X NRSA63D-331X NRSA63D-331X NRSA63D-331X NRSA63D-331X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	330k 1/16W 330 · 1/16W 330 1/16W 330 1/16W 330 1/16W 330 1/16W 330 1/16W
C1	NCB31CK-104X	CER.CAPACITOR	0.1 16V
CN1 CN2 CN3 CN4	QGG2005M1-03 QGG2005M1-03 QGG2005M1-03 QGG2005M1-03	CONNECTOR CONNECTOR CONNECTOR CONNECTOR	3PIN 3PIN 3PIN 3PIN
DA1 DA2	QLD0052-001 PGZ02384	LCD BACK LIGHT ASSY	

6.12 I/O JUNC BOARD ASSEMBLY PARTS LIST 12 SCK2574-01-00A

SCK2574-01-00A 12			
Symbol No.	Part No.	Part Name	Description
D1 D2	SB140L-6395 RD9.1EW-T1	DIODE ZENER DIODE	SANYO NEC
R1 R2 R3 R4	NRSA02J-222X NRSA02J-100X NRSA02J-0R0X NRSA02J-0R0X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	2.2k 1/10W 10 1/10W 0 1/10W 0 1/10W
C1	QETB1EM-478	E.CAPACITOR	4700 25V
LC1	ZJSC-2R2-101-TA	LC FILTER	LC1-8
CN19 CN22 CN33 CN35 CN36 CN41 CN62 CN63 CN64 CN301	OGA2501C2-05Z OGA2501C2-03Z OGA1501C1-04 OGA1501C1-05 OGA1501C1-06 OGA1501C1-09 OGA1501C1-05 OGA1501C1-05 OGA1501C1-06 OGA3901C1-04	CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR	5PIN 3PIN 4PIN 5PIN 6PIN 0PIN 5PIN 5PIN 6PIN 4PIN
CN302 CN303 CN304	QGA3901C1-02 QGA2001C1-02 QGA1501C1-02	CONNECTOR CONNECTOR CONNECTOR	2PIN 2PIN 2PIN
TP1	QNZ0352-001Z	TEST POINT	TP1-6
FC1 FC2	QNG0037-001Z QNG0037-001Z	FUSE HOLDER FUSE HOLDER	
K1 K4	SCV2662-027 PGZ00354	FERRITE BEADS FERRATE BEADS	K1,2 K4,5,7
VA1	QAF0025-220	VARISTOR	

6.13 MIC1 BOARD ASSEMBLY PARTS LIST 13 SCK2526-02-004

SCK2526-02-00A 13 Description			
Part No.	Part Name	Description	
NJM2068M-D-X	I.C.(M)	JRC	
MA143A-X MA143A-X	DIODE	MATSUSHITA MATSUSHITA	
NRSA63J-100X NRSA63D-121X NRSA63D-472X NRSA63D-822X NRSA63D-121X NRSA63D-472X NRSA63D-822X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	10 1/16W 120 1/16W 4.7k 1/16W 8.2k 1/16W 120 1/16W 4.7k 1/16W 8.2k 1/16W	
NEH91AM-336X NCB11AK-225X NDC31HJ-681X NEH91CM-476X NCB31HK-222X NEH91CM-476X NCB11AK-225X NDC31HJ-681X NCB31HK-222X NCB10JM-335X	E.CAPACITOR CER.CAPACITOR CER.CAPACITOR E.CAPACITOR CER.CAPACITOR E.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	33 10V 2.2 10V 680p 50V 47 16V 2200p 50V 47 16V 2.2 10V 680p 50V 2200p 50V 3.3 6.3V	
NCB10JM-335X	CER.CAPACITOR	3.3 6.3V	
NQL124K-150X NQL124K-150X	COIL COIL	15uH 15uH	
QGA1201F2-07X QGA1201F2-06X	CONNECTOR CONNECTOR	7PIN 6PIN	
SCV2662-027	FERRITE BEADS	K1-4	
	Part No. NJM2068M-D-X MA143A-X MA143A-X NRSA63J-100X NRSA63D-121X NRSA63D-472X NRSA63D-472X NRSA63D-472X NRSA63D-822X NRSA63D-822X NRSA63D-822X NEH91AM-336X NCB11AK-225X NCB11AK-225X NCB11HJ-681X NCB31HK-222X NCB11AK-225X NCB11AK-225X NCB11AK-225X NCB11AK-225X NCB11AK-225X NCB11AK-255X NCB10JM-335X NCB10JM-335X NCB10JM-335X NQL124K-150X NQL124K-150X QGA1201F2-07X QGA1201F2-06X	Part No. Part Name NJM2068M-D-X I.C.(M) MA143A-X DIODE MA143A-X DIODE NRSA63J-100X M.G.RESISTOR NRSA63D-121X M.G.RESISTOR NRSA63D-472X M.G.RESISTOR NRSA63D-822X M.G.RESISTOR NRSA63D-121X M.G.RESISTOR NRSA63D-121X M.G.RESISTOR NRSA63D-121X M.G.RESISTOR NG.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR NG.B.ESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.	

S	CK2535-02-00A	14	
Symbol No.	Part No.	Part Name	Description
D901 D902 D903 D904 D905	SLM-13VWF-X SLM-13VWF-X SLM-13VWF-X SLM-13VWF-X SLM-13VWF-X	L.E.D. L.E.D. L.E.D. L.E.D. L.E.D.	
R901 R902 R903 R904 R905	NRSA63D-332X NRSA63D-332X NRSA63D-472X NRSA63D-223X NRSA63D-222X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	3.3k 1/16W 3.3k 1/16W 4.7k 1/16W 22k 1/16W 2.2k 1/16W
\$901 \$902 \$903 \$904 \$905 \$906	NSW0005-001X NSW0005-001X NSW0005-001X NSW0005-001X NSW0005-001X NSW00052-001X	TACT SWITCH TACT SWITCH TACT SWITCH TACT SWITCH TACT SWITCH PUSH SWITCH	STOP REW FF PLAY EJECT OPE COVER SW
CN13	QGF1012F1-08X	CONNECTOR	8PIN

SLK2078-00B			15
Symbol No.	Part No.	Part Name	Description
CN2 CN3 CN4 CN5 CN6 CN7 CN8 CN9 CN10 CN12	OGA1201F2-03X OGA1501F2-02W OGA1501F2-03W OGA1501F2-03W OGA1501F2-03X OGA1501F2-03X OGA1501F2-02W OGA1501F2-02W OGA1501F2-02W OGA1501F2-02W OGA1201F2-02W OGA1201F2-02W OGA1201F2-02W	CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR CONNECTOR	3PIN 2PIN 3PIN 3PIN 3PIN 2PIN 5PIN 4PIN 2PIN 8PIN 2PIN 40PIN

6.16 MDA BOARD ASSEMBLY PARTS LIST 16 SLK2036-00A 16

		1			
Symbol No.	Part No.	Part Name	Description		
	Note: When replace the MDA board assembly , copy the marking on CN2 to new one which use setting S201 on the MAIN board (refer to 2.5.2).				
IC1 IC2 IC3	BA10393F-XE BA10358F-X BA6441FP-X	I.C.(M) I.C.(M) I.C.(M)	ROHM ROHM ROHM		
Q1 Q2	2SC4081/QRS/-X 2SA1576A/QRS/-X	TRANSISTOR TRANSISTOR	ROHM ROHM		
D2	MA3020-X	ZENER DIODE	MATSUSHITA		
R1 R2 R3 R4 R5 R6 R7 R9 R10	NRSA63J-103X NRSA63J-0R0X NRSA63J-473X NRSA63J-103X NRSA63J-103X NRSA63J-103X NRSA63J-102X NRSA63J-102X NRSA63J-102X NRSA63J-103X	M.G. RESISTOR M.G. RESISTOR M.G. RESISTOR M.G. RESISTOR M.G. RESISTOR M.G. RESISTOR M.G. RESISTOR M.G. RESISTOR M.G. RESISTOR M.G. RESISTOR M.G. RESISTOR	10k 1/16W 0 1/16W 47k 1/16W 10k 1/16W 56k 1/16W 10k 1/16W 470k 1/16W 1k 1/16W 8.2k 1/16W 10k 1/16W		
R12 R13 R14 R15 R16 R17 R18 R19 R20 R21	NRSA63J-103X NRSA63J-222X NRSA63J-105X NRSA63J-563X NRSA63J-374X NRSA63J-332X NRSA63J-103X NRSA63J-101X NRSA63J-103X NRSA63J-103X NRSA63J-103X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	10k 1/16W 2.2k 1/16W 1M 1/16W 56k 1/16W 270k 1/16W 3.3k 1/16W 10k 1/16W 100 1/16W 10k 1/16W 0.68 1/4W		
R22 R23 R24 R25 R26 R27 R28	NRSA63J-103X NRSA63J-102X NRSA63J-562X NRSA63J-103X NRSA63J-121X NRSA63J-121X NRS144J-R68X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	10k 1/16W 1k 1/16W 5.6k 1/16W 10k 1/16W 120 1/16W 120 1/16W 0.68 1/4W		
C1 C4 C5 C6 C7 C8 C9 C10 C11	NCB31EK-223X NCF31CZ-104X NEH71EM-476X NCB31EK-223X NCF31CZ-104X NCF31EZ-473X NCB31HK-102X NCS31HJ-471X NCF31CZ-104X NBE41CM-106X	CER.CAPACITOR CER.CAPACITOR E.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR TAN.CAPACITOR	0.022 25V 0.1 16V 47 25V 0.022 25V 0.1 16V 0.047 25V 1000p 50V 470p 50V 0.1 16V		
C13 C14 C15 C16 C17 C18 C19 C20 C21	NBE21EM-105X NCB31HK-103X NCB31HK-103X NEN21HM-224X NEN21HM-224X NEN21HM-224X NCF31CZ-104X NCF31CZ-104X NCF31CZ-104X	TAN.CAPACITOR CER.CAPACITOR CER.CAPACITOR N.P.CAPACITOR N.P.CAPACITOR N.P.CAPACITOR CER.CAPACITOR CER.CAPACITOR CER.CAPACITOR	1 25V 0.01 50V 0.01 50V 0.22 50V 0.22 50V 0.22 50V 0.1 16V 0.1 16V		
L1	NQL124J-470X	COIL	47uH		
CN1 CN2	QGF1012F1-10X QGF1012F1-15X	CONNECTOR CONNECTOR	10PIN 15PIN		
K1	PGZ00627Z	FERRATE BEADS	K1-3		
L					

6.17 A/C BOARD ASSEMBLY PARTS LIST 17 SI K2046-05-00B

31	_KZU40-U3-UUD	1	
Symbol No.	Part No.	Part Name	Description
CN501	QGA1501F1-10	CONNECTOR	10PIN

6.18 M.SENS BOARD ASSEMBLY PARTS LIST 18 SLK2046-01-00B 18

Symbol No.	Part No.	Part Name	Description
CN401	QGA1501C1-05	CONNECTOR	5PIN

6.19 AL BOARD ASSEMBLY PARTS LIST 19 SLK2046-02-00B 19

Symbol No.	Part No.	Part Name	Description
PC101	ON1023	I.C(PH COUPLER)	
CN101	QGA1501F1-03	CONNECTOR	3PIN

6.20 T.FG BOARD ASSEMBLY PARTS LIST 2 0 SLK2046-03-00B 2 0

Symbol No.	Part No.	Part Name	Description
PC101	ON1023	I.C(PH COUPLER)	
CN101	QGA1501F1-03	CONNECTOR	3PIN

6.21 S.FG BOARD ASSEMBLY PARTS LIST 2 1 SLK2046-04-00B 2 1

Symbol No.	Part No.	Part Name	Description
PC301	TLP853	I.C(PH COUPLER)	
CN301	QGA1501F1-03	CONNECTOR	3PIN

6.22 B.SENS BOARD ASSEMBLY PARTS LIST 22 SLK2047-01-00A 222

Symbol No.	Part No.	Part Name	Description
Q101	PN268-NC/P1/	TRANSISTOR	MATSUSHITA
CN101	QGA1501F1-03	CONNECTOR	3PIN

6.23 E.SENS BOARD ASSEMBLY PARTS LIST 23 6.25 SW2 BOARD ASSEMBLY PARTS LIST 25 SCK2525-02-00A 215

31	_KZU4/-UZ-UUA		
Symbol No.	Part No.	Part Name	Description
Q201	PN268-NC/P1/	TRANSISTOR	MATSUSHITA
CN201	QGA1501F1-03	CONNECTOR	ЗРІМ

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6.26 SW3 BOARD ASSEMBLY PARTS LIST 26

50	JR2020-02-00 <i>F</i>		
Symbol No.	Part No.	Part Name	Description
S1	QSW0046-001	TOGGLE SWITCH	POWER
CN18 CN22	QGA2501F1-02 QGA2501F1-03	CONNECTOR CONNECTOR	2PIN 3PIN

6.24 SW1 BOARD ASSEMBLY PARTS LIST 24 SCK2587-02-N0A(U)

SCK2539-02-E0A(E)

24	

SCK2539-02-E0A(E) 24			S	CK2525-03-00A	26	
Part No.	Part Name	Description	Symbol No.	Part No.	Part Name	Description
TC74HC165AF-X	I.C.(M)	TOSHIBA	S1	QSW0189-001Z	PUSH SWITCH	VTR TRIG2
MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X	DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE	MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA	CN21	QGA1501F1-02	CONNECTOR	2PIN
	Part No. TC74HC165AF-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X	Part No. Part Name TC74HC165AF-X I.C.(M) MA143A-X DIODE MA143A-X DIODE	Part No. Part Name Description TC74HC165AF-X I.C.(M) TOSHIBA MA143A-X DIODE MATSUSHITA MA143A-X DIODE MATSUSHITA	Part No. Part Name Description TC74HC165AF-X I.C.(M) TOSHIBA S1 MA143A-X DIODE MATSUSHITA MA143A-X DIODE MATSUSHITA	Part No. Part Name Description Symbol No. Part No. TC74HC165AF-X I.C.(M) TOSHIBA S1 QSW0189-001Z MA143A-X DIODE MATSUSHITA CN21 QGA1501F1-02 MA143A-X DIODE MATSUSHITA MATSUSHITA MA143A-X DIODE MATSUSHITA MATSUSHITA	Part No. Part Name Description Symbol No. Part No. Part Name TC74HC165AF-X I.C.(M) TOSHIBA S1 QSW0189-001Z PUSH SWITCH MA143A-X DIODE MATSUSHITA CN21 QGA1501F1-02 CONNECTOR MA143A-X DIODE MATSUSHITA 6.27 SW4 BOARD ASSEMBLY PARTS LIST 27 27 SCK2525-04-00A

	JN2323-U4-UUM				
Symbol No.	Part No.	Part Name	Description		
D1 D2 D3 D4 D5 D6 D7	MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X	DIODE DIODE DIODE DIODE DIODE DIODE DIODE	MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA		
R1 R2 R3 R4 R5 R6 R7	NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-222X NRSA02J-222X	M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR M.G.RESISTOR	2.2k 1/10W 2.2k 1/10W 2.2k 1/10W 2.2k 1/10W 2.2k 1/10W 2.2k 1/10W 2.2k 1/10W		
C1	NCF21HZ-104X	CER.CAPACITOR	0.1 5OV		
S1	QSW0048-001	TOGGLE SWITCH	S1-4		
CN21	QGA1501F1-12	CONNECTOR	12PIN		

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L	Symbol No.	Part No.	Part Name	Description
	IC1	TC74HC165AF-X	I.C.(M)	TOSHIBA
	D1 D2 D3 D4 D5 D7 D8 D9 D10	MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X MA143A-X	DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE DIODE	MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA MATSUSHITA
	D12 D13	MA143A-X MA143A-X	DIODE DIODE	MATSUSHITA MATSUSHITA
	R1 R2 R3 R4 R5 R7 R8 R9 R10	NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-223X NRSA63D-183X NRSA63D-103X	M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR M. G.RESISTOR	22k 1/16W 22k 1/16W 22k 1/16W 22k 1/16W 330k 1/16W 22k 1/16W 22k 1/16W 22k 1/16W 21k 1/16W 22k 1/16W 22k 1/16W
	R12	NRSA63D-562X	M.G.RESISTOR	5.6k 1/16W
	C1	NCB31CK-473X	CER.CAPACITOR	0.047 16V
	S1 S2 S3	QSW0048-001 QSW0189-001Z QSW0052-004	TOGGLE SWITCH PUSH SWITCH TOGGLE SWITCH	ZEBRA VTR TRIG A.FOCUS/WHITE
	CN7 CN8 CN10	QGA1201C2-10X QGA1201C2-12X QGA1201C2-05X	CONNECTOR CONNECTOR CONNECTOR	10PIN 12PIN 5PIN
	K1	SCV2662-027	FERRITE BEADS	K1-10
	TB1	PGZ02228	EARTH LUG	
	VA1	QAF0025-220	VARISTOR	

6.28	SW5 BOARD ASSEMBLY PA	RTS LIST 28
	SCK2526-03-00A	28

CO112320-00 00A			
Symbol No.	Part No.	Part Name	Description
S1	NSW0070-002X	SLIDE SWITCH	S1,2/AUDIO 1,2
CN39	QGA1201F2-05X	CONNECTOR .	5PIN -

6.31 TC.OUT BOARD ASSEMBLY PARTS LIST 3 1 31100000

SCK2525-10-00A			31111111111
Symbol No.	Part No.	Part Name	Description
CN34	QGA1501C1-04	CONNECTOR	4PIN
K1	SCV2662-027	FERRITE BEADS	K1,2

6.29 SW6 BOARD ASSEMBLY PARTS LIST 29

SCK2526-04-00A	29
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OCILEDED OF COAT				
Symbol No.	Part No.	Part Name	Description	
S1	QSW0339-001	SLIDE SWITCH	CAM/VTR	
CN60	QGA1201F2-02X	CONNECTOR	2PIN	
		1		

6.32 EAR BOARD ASSEMBLY PARTS LIST 3 2

32 SCK2525-05-00A

Symbol No.	Part No.	Part Name	Descrip	tion
C1 C2	NDC21HJ-181X NDC21HJ-181X	CER.CAPACITOR CER.CAPACITOR	180p 180p	50V 50V
J15	QNS0095-001	3.5 JACK	EAR PHONE	
CN27	QGA1501F1-04	CONNECTOR	4PIN	

6.30 TC.IN BOARD ASSEMBLY PARTS LIST 30 30

SCK2525-09-00A

Symbol No.	Part No.	Part Name	Description
CN37	QGA1501C1-02	CONNECTOR	2PIN
K1	SCV2662-027	FERRITE BEADS	K1,2

6.33 LI.BATT BOARD ASSEMBLY PARTS LIST 33 3 3

SCK2535-03-00A

Symbol No.	Part No.	Part Name	Description
CN38 CN801 CN802	QGA1501F2-02W YQ44288-1-1 YQ44289-1-1	CONNECTOR CONNECTOR CONNECTOR	2PIN 1PIN 1PIN

6.34 GEN.IN BOARD ASSEMBLY PARTS LIST 3 5 SCK2525-08-00A 3 5

51	UK2525-U8-UUA		
Symbol No.	Part No.	Part Name	Description
R1 R2	NRSA02J-750X NRSA02J-0R0X	M.G.RESISTOR M.G.RESISTOR	75 1/10W 0 1/10W
CN58	QGA1501C1-03	CONNECTOR	3PIN
K1	SCV2662-027	FERRITE BEADS	

6.37 CN BOARD ASSEMBLY PARTS LIST 38

S	CK2542-02-00A	38	
Symbol No.	Part No.	Part Name	Description
CN26	QGA1201C2-06X	CONNECTOR	6PIN
ł	1		

6.35 MON.OUT BOARD ASSEMBLY PARTS LIST 3 6

S	CK2525-11-00A		3 6	البالبالبال
Symbol No.	Part No.	Part Name	De	escription
CN59	QGA1501C1-02	CONNECTOR	2PIN	
K1 K2	NRSA02J-0R0X NRSA02J-0R0X	M.G.RESISTOR M.G.RESISTOR	0	1/10W 1/10W

6.38 MEMORY BOARD ASSEMBLY PARTS LIST 4 0 SCK2542-01-00A 4 0 C

Symbol No.	Part No.	Part Name	Des	Description NATIONAL SEMICO	
IC1	NM93C86AEM8-X	I.C.(M)	NATIONAL		
D1 D2 D3 D4 D5	MA143A-X MA143A-X MA143A-X MA143A-X HZM6C-X	DIODE DIODE DIODE DIODE ZENER DIODE	MATSUSHI MATSUSHI MATSUSHI MATSUSHI HITACHI	TA TA	
R1 R2	NRSA63D-101X NRSA63D-223X	M.G.RESISTOR M.G.RESISTOR	100 22k	1/16W 1/16W	
C1	NCB31CK-104X	CER.CAPACITOR	0.1	16V	
J13	QNZ0259-001	PLUG(6P)	6PIN		

6.36 RM BOARD ASSEMBLY PARTS LIST 3 7 SCK2525-06-00A 3 7

50	SCK2525-U0-UUA			
Symbol No.	Part No.	Part Name	Descr	iption
C1	NDC21HJ-820X	CER.CAPACITOR	82p	50V
J16	QNS0095-001	3.5 JACK	REMOTE	
CN40	QGA1501F1-03	CONNECTOR	3PIN	
į				

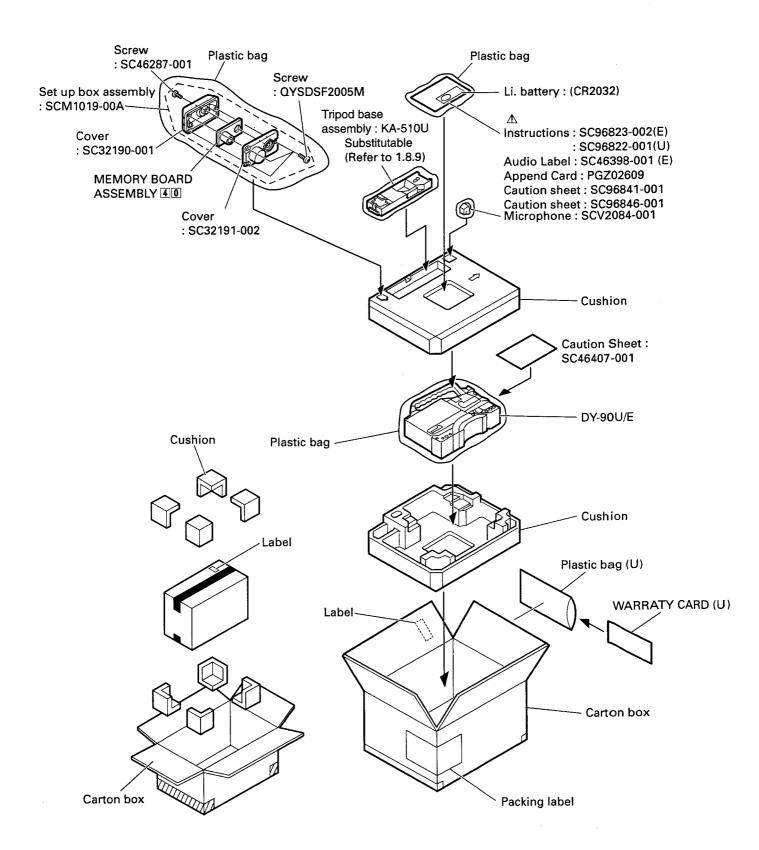
6.39 MIC2 BOARD ASSEMBLY PARTS LIST 41 SCK2570-01-00A 41

-				
Symbol No.	Part No.	Part Name	Description	
LC1	ZJSC-2R2-101	LC FILTER	LC1,2	
CN28 CN61	PGZ02149-103Z PGZ02149-104Z	CONNECTOR CONNECTOR	3PIN 4PIN	
K1	PGZ00354	FERRATE BEADS	K1,2	
	,			
	:			
		1		

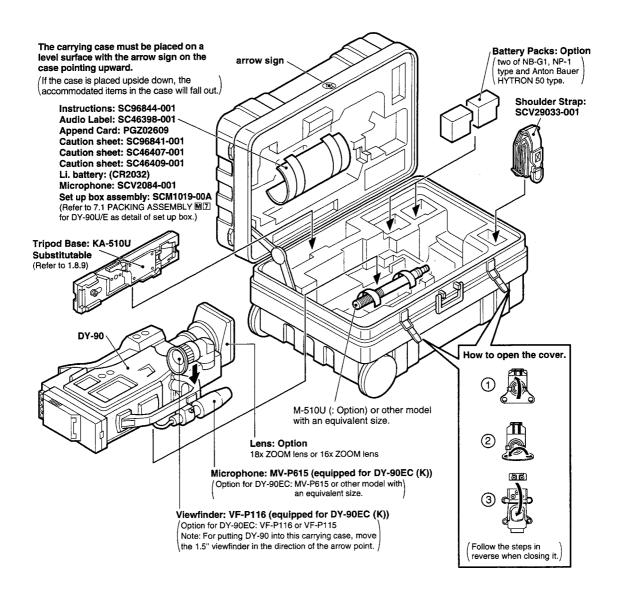


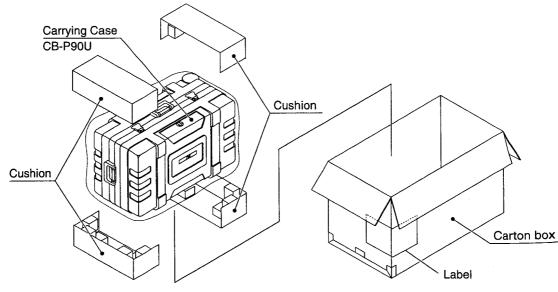
SECTION 7 PACKING

7.1 PACKING ASSEMBLY M 7 for DY-90U/E



7.2 PACKING ASSEMBLY M 7 for DY-90EC/EC (K)





7.3 SW & VR SETTING

7.3.1 SW & VR setting for DY-90E/EC/EC (K)

: Setting Switch and VR Name Setting at shipment OP FILTER 1.3200K 2.5600K + 1/4ND 4.5600K + 1/16ND 3.5600K **POWER** OFF ON VTR STBY SAVE **GAIN** Н Μ **OUTPUT (A. KNEE)** CAM/ON CAM/OFF BAR/ON WHT. BAL **PRST** В NORMAL **AUTO IRIS** BACK L STOP L COMPRESS **BLACK STRETCH** NORMAL SHUTTER OFF ON V. SCAN FILE В OFF Α **ZEBRA** ON OFF LINE AUD1 INPUT SELECT MIC MIC +48V ON **AUD2 INPUT SELECT** MIC MIC +48V ON LINE MONITOR OUT SELECT VTR CAM **AUDIO DISPLAY** DA1/DA2 DA3/DA4 LIGHT ON OFF **COUNTER** CTL TC UB MIC SELECT (2/1L) AUTO MANUAL MIC SELECT (1R) AUTO MANUAL MIC SELECT MIC 1 MIC 2 AUTO AUDIO SELECT (AUD. 1) MANUAL AUDIO SELECT (AUD. 2) AUTO MANUAL TC GENERATOR PRESET REGEN TC GENERATOR REC FREE TC DISP TC SUB TC MONITOR LEVEL ALARM LEVEL MIC. REC. LEVEL 1/L Center MIC. REC. LEVEL 2/R AUDIO LEVEL DA1 AUDIO LEVEL DA1 H. PHASE SC FINE Setting by adjustment SC COARSE

7-3

7.3.2 SW & VR setting for DY-90U

	_		: Setting	
Switch and VR Name	Se	etting at shipmer	nt	
OP FILTER	1.3200K	2.5600K		
	3.5600K + 1/16 ND	EFFECT (CROS	SS)	
POWER	ON	OFF		
VTR	STBY	SAVE		
GAIN		М	Н	
OUTPUT (A. KNEE)	CAM/ON	CAM/OFF	BAR/ON	
WHT. BAL	В	A	PRST	
AUTO IRIS	BACK L	NORMAL	STOP L	
BLACK	STRETCH	NORMAL	COMPRESS	
SHUTTER	ON	V. SCAN	OFF	
FILE	Α	В	OFF	
ZEBRA	ON	OFF		
DA1 INPUT SELECT	LINE	MIC	MIC +48V ON	
DA2 INPUT SELECT	LINE	MIC	MIC +48V ON	
MONITOR OUT SELECT	VTR	CAM		
AUDIO DISPLAY	DA1/DA2	DA3/DA4		
LIGHT	ON	OFF		
COUNTER	CTL	TC	UB	
DA1 AUDIO MODE SELECT	AUTO	MANUAL		
DA2 AUDIO MODE SELECT	AUTO	MANUAL]	
DA3 AUDIO MODE SELECT	AUTO	MANUAL		
DA4 AUDIO MODE SELECT	AUTO	MANUAL		
TC GENERATOR	PRESET	REGEN		
TC GENERATOR	REC	FREE		
TC DISP	TC	SUB TC		
MONITOR LEVEL				
ALARM LEVEL]			
DA1 AUDIO LEVEL		•		
DA2 AUDIO LEVEL		Center		
DA3 AUDIO LEVEL				
DA4 AUDIO LEVEL		5.5em spring.		
H. PHASE				
SC FINE	Setting by adjustment			
SC COARSE				

SECTION 8 TECHNICAL INFORMATION

8.1 COMPARISON WITH PREVIOUS MODEL

8.1.1 Camera Section

Specifications	KY-D29	DY-90 Camera Section	
Image pickup device	2/3", 3-IT CCD	2/3", 3-IT CCD	
Effective pixels	768H x 493V	768H x 493V	
Sensitivity	F11, 2000 lux	F11, 2000 lux	
Color temperature conversion filters	3200K, 5600K, 5600K + 1/16 ND, effect (cross) filter	[U version]: 3200K, 5600K, 5600K + 1/16 ND, effect (cross) filter [E version]: 3200K, 5600K, 5600K + 1/4 ND, 5600K + 1/16 ND	
Minimum object illumination	0.35 lux (with Super Lolux)	0.75 lux (with Super Lolux)	
S/N	65 dB (DNR ON)	_	
Horizontal resolution	850 TV lines	_	
Contour correction	H: Bothways V: Bothways	H: Bothways V: Bothways	
Color bar signal	SMPTE color bars	SMPTE color bars	
White balance	Preset/AW1/AW2/(FAW)	Preset/A/B/(FAW)	
Electronic shutter	1/60, 1/100, 1/250. 1/1000, 1/2000, V.SCAN	1/60, 1/100, 1/250, 1/1000, 1/2000, V.SCAN	
Gain boost	-3/0/6/9/12/18 dB, ALC	-3/0/6/9/12/18 dB, ALC	
Functions	KY-D29	DY-90 Camera Section	
Full-auto shooting (FAS)	Provided	Provided	
Variable scanning (V.SCAN) Lolux	60.5 Hz to 249.7 Hz Lolux: +33 dB gain boost Super Lolux: +39 dB gain boost	60.5 Hz to 249.7 Hz Lolux: +33 dB gain boost	
High-resolution function	Normal: 380 TV lines (V resolution) V. Plus: 420 TV lines V. Max: 450 TV lines	Normal: 380 TV lines (V resolution) V. Plus: 420 TV lines V. Max: 450 TV lines	
Accu-focusing function	Built in	Built in	
Smooth transition function	Built in	Built in	
Black stretching function	Built in	Built in	
Black compression function	Built in	Built in	
Auto knee function	ON/OFF switchable (menu driven)	ON/OFF switchable (switch provided)	
DNR (Digital Noise Reduction)	Built in	_	
White flaw correction	Built in	Built in	
Detail H/V balance setting (DTL, H/V BAL.)	Built in	Built in	
Detail enhancement frequency setting (DTL. FREQUENCY)	LOW, MIDDLE, HIGH, AUTO	LOW, MIDDLE, HIGH	

Table 8-1-1 Comparison with Previous Model

8.1.2 VCR Section

Specifications/Functions	BR-D40	DY-90 VCR Section
Format	Digital-S	Digital-S
Tape width	12.65 mm	12.65 mm
Tape speed	57.737 mm/sec. (NTSC)	57.737 mm/sec. (NTSC)
	57.795 mm/sec. (PAL)	57.795 mm/sec. (PAL)
Recording/play time	104 minutes (with a DS-104 cassette)	104 minutes (with a DS-104 cassette)
Power consumption	22W (BR-D40 in recorded mode)	30W (in recorded mode with camera)
\		
Video	Y: 5 MHz, R-Y/B-Y: 2 Mhz	Y: 5 MHz, R-Y/B-Y: 2 Mhz
Frequency response S/N	52 dB (during BR-D80/D50 reproduction with	52 dB (during BR-D80/D50 reproduction with
3/14	component output)	component output)
Resolution	410 lines	410 lines
rtesolution	410 111103	110 111/00
Audio		
Number of channels	PCM x 2, cue track x 2	PCM x 4, cue track x 2
Mic-1 input	None	–52 dBs, unbalanced, 6-pin
Mic-2 input	–60 dBs, balanced, XLR 3-pin	–60 dBs, balanced, XLR 3-pin
Line input	$+4$ dB, 10 k Ω , balanced	$+4$ dB, 10 k Ω , balanced
	-60 dB, 3 k Ω , balanced	–60 dB, 3 k Ω , balanced
Output	-6 dBs, low impedance, unbalanced (RCA)	0 dBs, low impedance, balanced (XLR5)
Sampling frequency	48 kHz	48 kHz
Quantization	16-bit	16-bit
Frequency response	20 Hz to 20 kHz (PCM)	20 Hz to 20 kHz (PCM)
Dynamic range	85 dB (PCM) (during BR-D80/D50 reproduction)	80 dB (PCM) (during BR-D80/D50 reproduction)
Wow & flutter	below measurable limit	below measurable limit

Table 8-1-2 Comparison with Previous Model

8.1.3 Circuit Layout

A comparison of circuit layouts is shown in Figures 8-1-1 (a) and (b).

In the case of a combination of KY-D29 and BR-D40, the transmission of the video signal has been carried out as its analog component. The signal from the camera section's CCD is converted to a digital signal. The signal digitally processed at the camera section is then returned to an analog signal by the D/A converter and sent to the VCR circuit. The signal is again digitalized by means of the A/D converter in the BR-D40. In the DY-90, however, the digital component signal is transmitted and received unchanged in order to avoid picture degradation. This allows a reduction of the number of A/D and D/A converters as well as the sharing of encoders between the different circuit sections, leading to energy saving and a lighter weight of the unit.

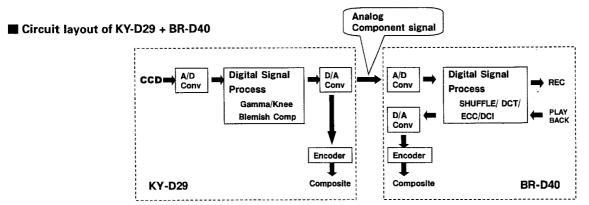


Fig. 8-1-1 (a)

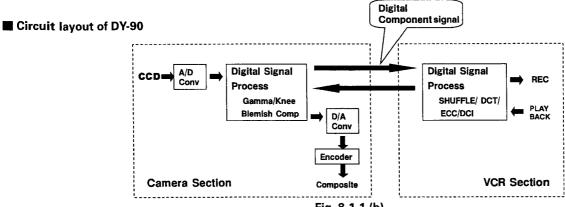


Fig. 8-1-1 (b)

8.2 DESCRIPTION OF NEW CIRCUITRY (CAMERA SECTION)

8.2.1 Video Processor Circuit in the Camera Section

The video processor circuit of this unit features a more simplified design than in previous cameras. When the circuit is seen from the viewpoint of signal flow in the camera circuitry, it roughly consists of three types of PC board. (Fig. 8-2-1)

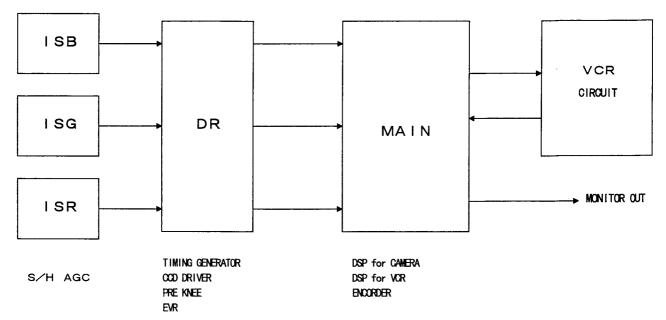


Fig. 8-2-1

The processor circuitry in the previous camera head was composed of the three circuit boards for TG (Timing Generator), DR (Driver) and PA (Pre-Amplifier), but this new unit combines the circuitry in a single DR board. This has made it possible to re-

duce the number of circuit boards and the component count with a consequent reduction of the CCD temperature rise thanks to the elimination of the circuit boards from the vicinity of the CCD.

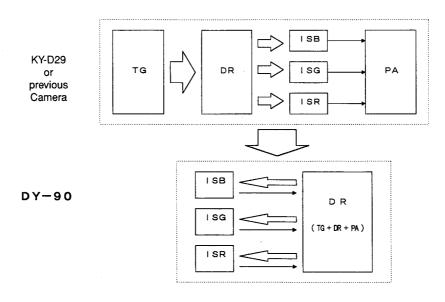


Fig. 8-2-2

(1) IS board

The circuitry in the IS board optimizes the clamping and sampling time constant by using a sample & hold circuit, which is an improvement on the previous CDS (Correlated Double Sampling) circuit, and improves the S/N by including the gain boost circuit

which has previously been located in the PA board. While the KY-D29 performed the feedback black clamping inside the IS board, this unit detects the black level at the DR board and feeds back the control signal to the IS board.

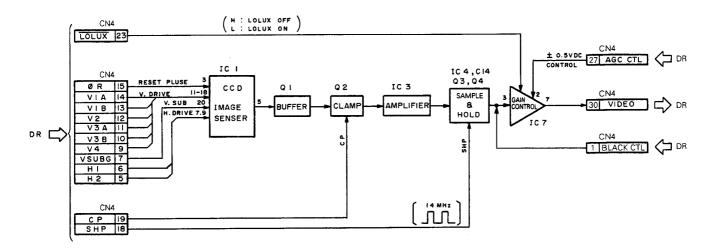


Fig. 8-2-3

(2) DR board

The DR board is implemented by unifying the functions which have previously been divided into three. The circuit design for each function is based on that used with the previous model KY-D29, but the new circuit is composed of simplified video circuitry and EVR-related circuitry.

The video-related signal processing circuitry includes the pre-

knee circuit which is indispensable for expressing a dynamic range of 600%, the detector circuit for the feedback black clamping (mentioned above) and the signal processor circuit related to the basic video performance parameters such as flare, M.BLACK and B.PAINT.

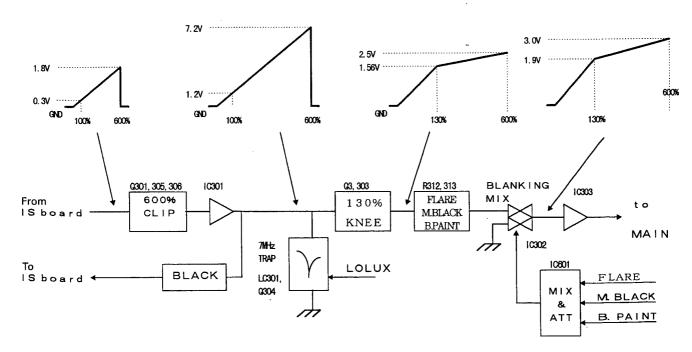


Fig. 8-2-4

(3) MAIN board (Camera-related signal processing)

In the MAIN board, the digital signal processing of the camera and that of the VCR are implemented in a single circuit board to minimize the transfer distance of digital signals, achieving an ideal digital-to-digital interfacing.

Among the range of wire functions of the MAIN board, the fol-

lowing description will focus on the processing of digital signals related to the camera. Among the 10 circuit diagrams of the MAIN board in this manual, those covering the camera-related functions are shown in pages 1, 2 and 3.

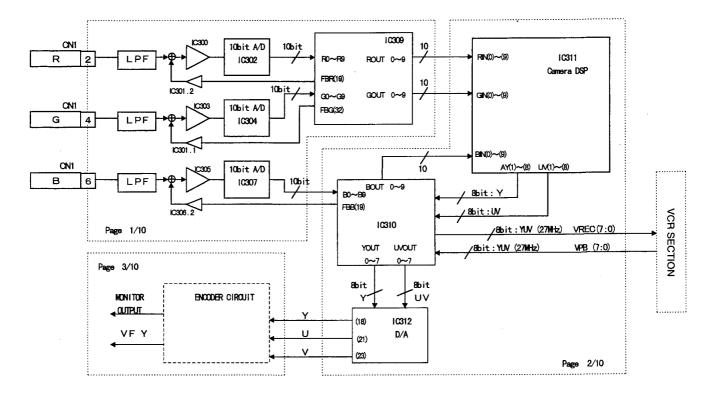


Fig. 8-2-5

The input R/G/B analog signals pass through the LPFs, then their black levels are clamped and converted into digital signals by 10-bit A/D converters. The digitally-converted signals of the R/G

CH are sent to IC309 and the digitally converted signal of the B CH is sent to IC310. These ICs perform the feedback lamp signal detection and the shading correction operations inside them.

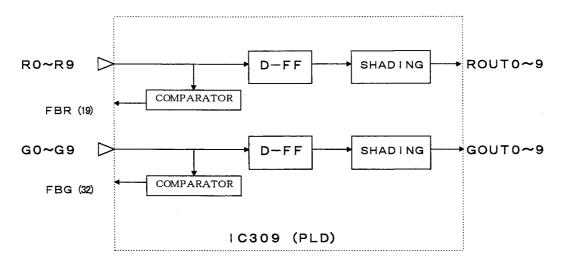


Fig. 8-2-6

The R/G/B digital signals output from the IC309 and IC310 are input into the main DSP (IC311) of the camera block. This camera DSP has the specifications and executes internal processing operations as listed below.

[Specifications]

- ♦ CMOS gate array: 0.35 μm rule, 330k gate
- ◆ 176-pin plastic QFP
- ◆ 3.3 V-drive: Power consumption below 300 mA
- Input signals: R/G/B, 10 bits each. Output signals: Y/UV, 9 bits each.
- ◆ Internal operations: Compatible with up to 14-bit width

[Functions

- ◆ White flaw detection and correction
- ◆ DETAIL circuit
- ◆ Color matrix circuit
- ◆ Gamma correction
- ◆ Y/UV matrix processing
- ◆ Black stretch/compression circuit
- ◆ Knee (Auto knee)/white clipping

- ◆ Peak, APL and NAM detection circuits
- ◆ Color bar generator circuit
- * These internal processing functions are basically identical to those which were digitalized with the KY-D29, but this gate array has been newly designed based on expertise obtained through the previous design.
- * The color matrix allows the user to reproduce the desired color tones by fine-adjusting nine parameters. (As the default values of the color matrix have been set based on a detailed examination and evaluation of color reproduction at the time of development, we believe that they usually do not need modification. If the color matrix is to be re-adjusted based on a user request, etc., the use of a color chart and vector scope is required. See section 1.8.10 for the adjustment procedure.)

The use of the newly developed DSP has achieved a reduction in the size and power consumption of the circuit board.

The internal processing block diagram of the DSP is shown below.

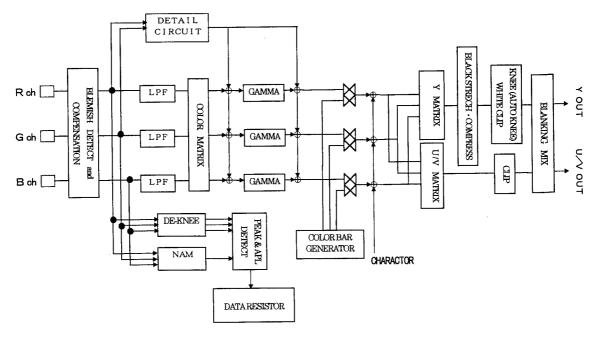


Fig. 8-2-7

The output signal format of the camera DSP is based on the Y (13.5 MHz) and UV mixed (13.5 MHz) signals. The signal sequence is shown below.

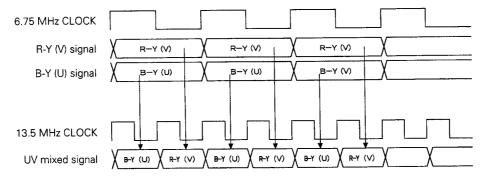


Fig. 8-2-8

Inside the IC310, the Y and UV signals are mixed to a YUV mixed (27 MHz) signal which interfaces with the Digital S VCR.

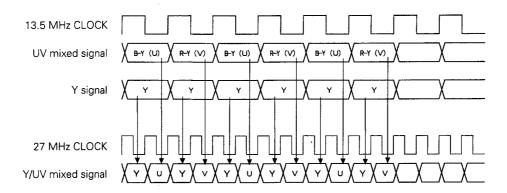


Fig. 8-2-9

The IC310 also includes a function for switching between the DSP input signals and the play (EE) signals and a circuit for synthesizing/decomposing the YUV mixed signals.

The IC309 and IC310 constituting the MAIN board use PLDs (Programmable Logic Devices) manufactured by ALTERA. The internal program of the IC is downloaded from the IC3 (ROM) of the CP board every time the power is turned on.

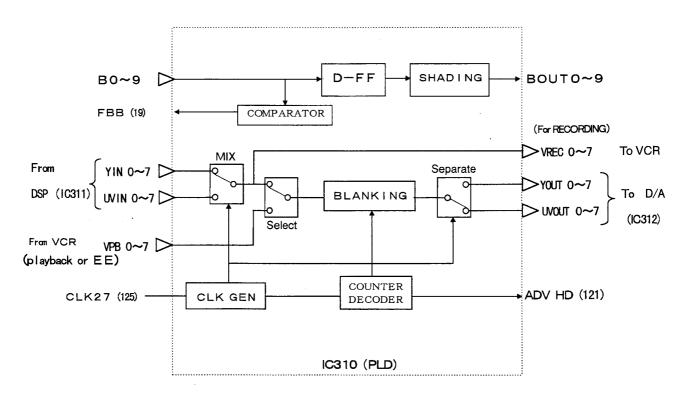


Fig. 8-2-10

8.2.2 Signal Processing in DSPIC (MAIN board IC311)

See Fig. 8.2.7 for the entire block diagram of DSPIC.

(1) "Detail" Signal Processing

The signal processing for this unit which takes place at the "Detail" signal generating and composing block of the camera DSP is different from the conventional signal processing. Details of the procedure will be given below.

The "Detail" signal generation and composing block in the DSP illustrated below.

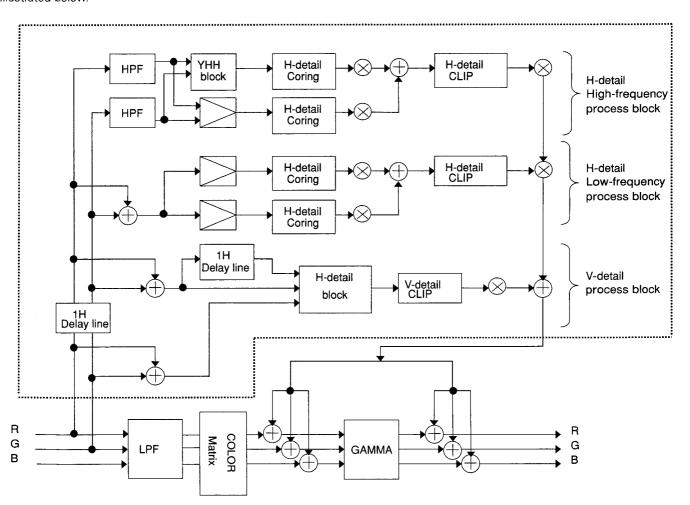


Fig. 8-2-11

H/V "detail" signals are generated from the Rch and Gch signals before passing through the color matrix circuit. The H-detail signal is separated between the high-frequency range and low-frequency range using the HPF to enable choosing a frequency range where the signal intensity is controlled and boosted. In the H-detail signal processing block, the frequency range is further separated into 4 sections where boosting intensity can be controlled. The mid frequencies of those frequency ranges are given below.

(When driven by a 13.5 MHz clock)

H – detail High Frequency : H 10.125MHz
H – detail High Frequency : L 6.75MHz
H – detail Low Frequency : H 3.75MHz
H – detail Low Frequency : L 1.875MHz

The generated "Detail" signals are added together. Half of the resulting sum is mixed with the line signals (R/G/B) prior to gamma correction processing and the other half with the line signals after gamma correction. This way, only half of the mixed "detail" signals is subjected to gamma correction processing, ensuring more natural-fit frequency characteristics than before. However, you may feel that the "Detail" signal is somehow too weak in dark area. This is because in the previous system the "Detail" signals in a dark area have been excessively intensified because the "Detail" signal components are amplified by letting them pass through the gamma correction circuit togther. In the present design, each half of the "Detail" signal components is added to line signals before and after the gamma correction circuit, so that they are less subjected to amplification with the gamma correction circuit.

(2) Color Matrix Circuit

The DSP of this unit includes a color matrix circuit for a finely defined color reproduction. Color reproduction characteristics can be altered and adjusted by controlling the color signal components separated as illustrated below in terms of the nine parameters.

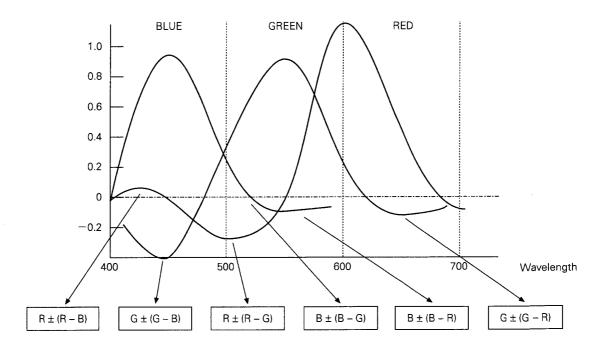


Fig. 8-2-12

(3) Data Detection Required for Auto Control Systems

In conventional cameras, the data required for controlling the auto control systems such as Auto White and Auto Balance have been generated and detected using the analog signal processing circuit in the CP board and then loaded into the CPU. Now in this unit, the DSP IC incorporates these facilities in itself and able to store the result of data calculation.

The CPU then loads the data in it as required.

This unit is also equipped with the DE-KNEE circuit which extends the signal compressed by the PRE-KNEE before calculating the PEAK/APL data of R/G/B.

It thus ensures a more accurate calculation of auto iris values for a very bright subject.

^{*} See Section 1.15 for details of the color matrix adjustment.

8.3 VIDEO SYSTEM

8.3.1 Video Circuit

(1) Signal flow

Fig. 8-3-1 shows the flow of signals in the video circuitry.

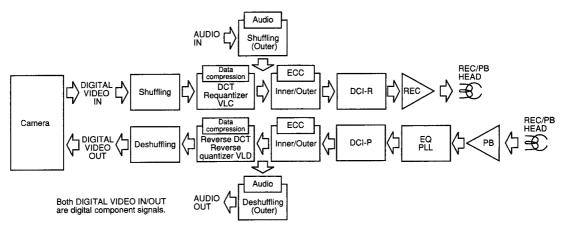


Fig. 8-3-1 (a) Video Signal Processing Flow

(2) Operation of each block

1) Input signals

The digital component video signals from the camera are input directly into the shuffling IC. While the BR-D40 incorporates A/D and D/A converters in this block to convert signals between analog and digital, the DY-90 transmits the signal in its original digital form in order to allow recording and playback without altering the video quality. Refer fig.8-3-1(b).

The input signal is based on the Digital-S format. It consists of digital component (4:2:2) signals with which $Y=13.5\,\text{MHz}$, B-Y/R-Y = 6.75 MHz and quantization bits of 8 bits. However, the Y, B-Y and R-Y signals are multiplexed into a single signal, which is transmitted at twice the frequency of the Y signal, i.e. at 27 MHz. The number of effective pixels and lines per frame are identical to the previous design.

The data rate per second is as follows.

NTSC: 720 (H) x 480 (V) x 2 (Y&C) x 8 (bits) x 30 (frames)

≒166 Mbps.

PAL : 720 (H) x 576 (V) x 2 (Y&C) x 8 (bits) x 25 (frames)

≒166 Mbps.

Input signal: Mixture of Y/C, transmitted at high 27 MHz rate.



8 bit / 27 MHz

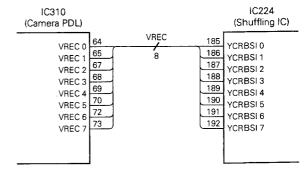


Fig. 8-3-1(b) Signal interface

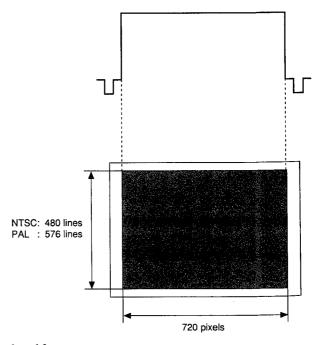


Fig. 8-3-1(c) Input signal from camera

2) Shuffling

The purpose of shuffling is to distribute data contained in five macroblocks equally among them that are used as a unit of fixed length data as well as to make data distortion caused by compression inconspicuous. Concretely, five macroblocks that are unitized as mentioned below are collected from various points of a picture according to a prescribed rule for shuffling.

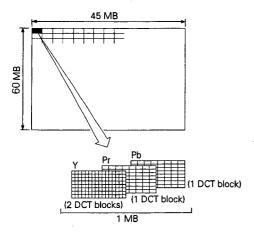
a) DCT block

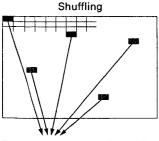
Prior to shuffling, data for one frame is splitted into 8x8 pixel blocks (called DCT blocks), each of which is a basic unit of DCT. Since there is a difference in sampling frequency between Y signal and color difference signal, Y signal is splitted into $60(V) \times 90(H)$ blocks while color difference signal is splitted into $60(H) \times 45(H)$ blocks for NTSC and Y signal is splitted into $72(V) \times 90(H)$ blocks while color difference signal is splitted into $72(V) \times 45(H)$ blocks.

b) Macroblock

One macroblock is composed of four DCT blocks in the same position of a picture. Detail of four DCT blocks is two DCT blocks of Y signal and two DCT blocks of each color difference signal (Pb or Pr). Concealment of ECC is carried out at a unit of macroblock.

Construction of picture





5 macroblocks are collected from various points of a picture and they are compressed to be a specified amount of data. This operation disperses data distortion caused by compression equally among theses macroblocks.

As continuous 5 macroblocks in a picture are uniformly formed into fixed length data of the same bits, distortion of data occurs in detail image portions. Shuffling not only controls occurrence of such distortion but also disperses distortion to make it inconspicuous.

3) Data compression

video data is compressed into 50 Mbps or 1/3.3 (50/166 Mbps) by high degree mathematical processing such as DCT (Discrete Cosine Transform), requantization, VLC (Variable Length Coding).

a) DCT (Discrete Cosine Transform)

DCT is a mathematical transformation theory utilized for DC-AC conversion of pixel value into frequency area. Since there is redundant data between neighboring pixels, DCT transforms pixel value into frequency area by DC-AC conversion. As a result, widely dispersed signal power can be concentrated in low frequency components which can easily be compressed.

Transformation of video data by DCT is carried out at a unit of DCT block, and transformed data are scanned zigzag as shown by Fig. 8-3-1. Since a plenty of zero values are detected as a result of the above-mentioned zigzag scan, code length can be shortened by the run length coding to be mentioned later.

b) Requantization

Requantization reduces amount of video data with little deterioration in picture quality, because low frequency components which signal power concentrate in are quantized fine while high frequency components which signal power is not dispersed in are quantized roughly.

In the requantization process, DCT output is splitted into four areas, which are respectively quantized by different quantizing steps. Quantizing step for each area is determined so that total amount of data of 5 macroblocks collected by shuffling fits in the specified amount. However, DC components are not requantized because they are important data.

c) VLC (Variable Length Coding)

Average code length can be shortened as a whole by allotting short code to high frequent matters and long code to low frequent matters. This coding method is called Variable Length Coding (VLC). The variable length coding adopted for the DIGITAL S format is constructed based on the Haffman coding in combination with the run length coding.

Run length coding

The run length coding, which is an efficient method to code data of "0" that is apt to appear continuously, transforms data into groups which consist of continuous "0" data and data other than "0" following continuous "0" data.

• Haffman coding

Haffman coding can shorten total code length because it allots short length code to frequently appearing groups (consisting of continuous 0's and following data other than 0) processed by the run length coding.

DCT:

The screen is divided into blocks (8 x 8 pixels). DCT means obtaining conversion coefficient that shows how much of predetermined picture pattern (64 pictures) is contained in each block.

DCT feature:

Eventhough the coefficient values for fine pictures are deleted, picture degradation is low when compared with other compression methods and fast processing (from conversion to compression) is possible. (Especially, the lower compression ratio of 1:3.3 adopted by DIGITAL S can ignore the possible picture deterioration.)

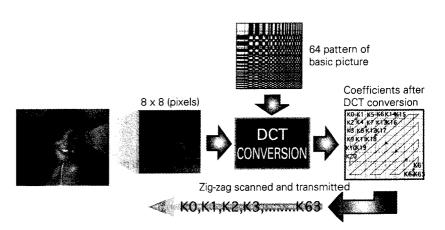


Fig. 8-3-1 (e) DCT conversion

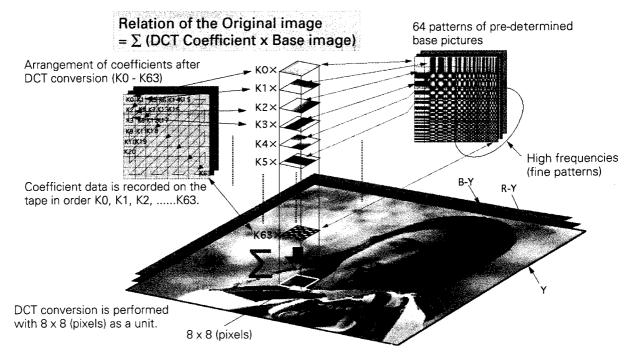


Fig. 8-3-1 (f) Relation of the Original image = Σ (DCT Coefficient x Base image)

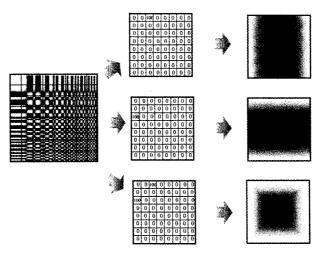


Fig. 8-3-1 (g) Actual image pattern by means of DCT coefficient

4) ECC (Error Correction Code)

If digitized recording signal is affected by noise, dust on tape or something other, PB signal may possibly differ from the recording signal. Therefore, digital VCR generally adds error correction code to recording signal and plays back the recording signal after correcting errors in recording signal by the correction code.

The DIGITAL S VCR adopts the Reed-Solomon product coding that demonstrates high ability to correct both random error and burst error (sequent errors) for the video and audio systems.

Video: Inner - RS (85, 77), Outer - RS (149, 138) Audio: Inenr - RS (85, 77), Outer - RS (14, 9)

The first number in parenthesis shows code length and the second number shows amount of data. Difference between these two numbers corresponds to number of parities.

If error that cannot be corrected occurs in audio, it gives incongrous feeling to the listener as audio's peculiar characteristic. Therefore, redundancy of aŭdio's outer parity is increased to raise the correction ability.

5) DCI

DCI rearranges video data, audio data and other data to be recorded on tape so as to meet the DIGITAL S format. As a result of this reformatting, video and audio data for a frame are divided into sectors by every 20 video data and every 5 audio data (for a channel).

Moreover, DCI modulates data of track format as mentioned below, and the modulated data are converted from parallel data to serial data before it is sent to the REC amplifier.

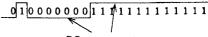
• Modulation (Channel coding)

Prior to recording of digital signal on tape, the recording data column is converted so that it conforms to the digital recording/playback system, however, operation of this conversion depends on the recording/playback characteristics of magnetic tape and machine being used, recording data rate, and so on

Although rotary transformer is generally used as a means to send signal to the rotary drum in the digital VCR, it is weak in sending a digital signal that contains continuous "0" or "1" data because there are much DC components in such the signal. On the other hand, it is needed to generate a clock synchronizing with playback signal by a PLL circuit for obtaining playback data. For generating and supplying this clock stably, it is also required to reduce continuity of "0" or "1" data in length. From a viewpoint of recording density, data pattern consisting of repetitive "0" and "1" is undesirable because repetition of "0" and "1" brings the severest recording/playback condition.

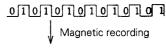
Channel coding of the DIGITAL S VCR is basically operated by SI-NRZI (scrambled interleaved non-return zero inverted) and 24-25 modulation.

As a result of the above-mentioned operation, data conversion is performed so that "0" and "1" are arranged suitably for adding sync signal and for recording/playback.



DC components

If recording data contains a lot of continuous 0's and 1's, a great deal of DC components are generated and the rotary transformer hardly transmits signal to the drum. Moreover, it is hard to read signal out because of difficulty in bit synchronization.



NSNSNSNSNSNS

If recording data contains alternate repetition of "0" and "1", recording frequency becomes high and it is hard to read signal out.

Fig. 8-3-1 (h)

6) EQ/PLL

Fig. 8-3-1 (i) shows the block diagram of the EQ/PLL circuit. The pre-filter, equalizer and 1+D circuits shape the amplitude and phase characteristics of the reproduced signal and make the distinction between "1" and "0" easy. The PLL circuit generates the clock in synchronization with the reproduced signal and returns it to the original digital signal.

a) Eye pattern

Since the digital-S format employs scrambled, interleaved NRZI modulation, its waveform becomes as shown in Fig. 8-

3-1 (e). The reproduced waveform is variable depending on the modulation system, but it is usually called the eye pattern because it has the shape of eyes. When the head is dirty, tracking is deviated or the reproduced RF waveform fluctuates or contains jitter, the opening (aperture ratio) of the eyes is decreased; in this case, the digital data cannot be identified and the error rate will deteriorate. When the error rate deteriorates to a level that cannot be corrected by the ECC circuit, block noise will be observed in the reproduced picture.

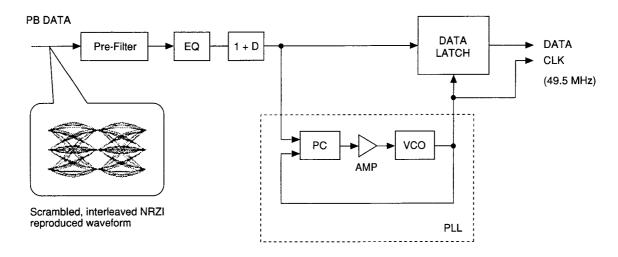


Fig. 8.3.1 (i)

b) Waveform equalization (1+D)

The circuit formed by IC303 to IC304 in the SS/RFP schematic diagram is the 1+D circuit. With the digital videotape recording, the reproduction characteristics of the lowest and the highest frequencies tend to deteriorate most. The low-frequency characteristic deterioration is produced by the reproduction of differential waveforms or the use of a rotary transformer.

When the low-frequency characteristic deteriorates, even when a 1-bit pulse is recorded, the pulse duration after reproduction may extend to several bits, thereby causing intersymbol interference.

The interference characteristic of the scrambled, interleaved NRZI modulation employed by the Digital-S format is equal to 1-D². This means that the input of isolated pulses..00100 results in the output of ...0010 -10, or that intersymbol interference of -1 occurs in 2 bits after the isolated pulses (see Fig. 8-3-1(j)).

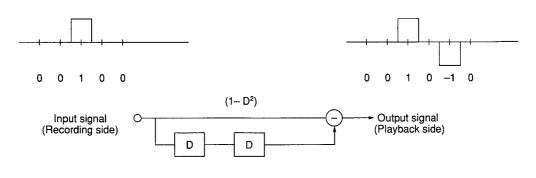


Fig. 8-3-1 (j)

It is by the signal processing on the playback side that the intersymbol interference should be eliminated. This interference characteristic $(1-D^2)$ can be factorized into (1+D)(1-D), where (1-D) can be substituted by the differentiation characteristic during reproduction. On the other hand, (1+D) can be implemented by a 1-bit analog delay and addition operations. Since the reproduced waveform of a scrambled, interleave NRZI signal uses ternary (1, 0, -1), the original binary codes can be obtained by identifying "1" and "-1" in the ternary waveform after (1+D) conversion as "1" and "0" in it as "0" (see Fig. 8-3-1(k)).

FL301 and FL401 on the SS/RFP board, from a 1-bit delay filter, the output of which is added to the original signal. R312 (R412) and VC301 (401) are used to adjust the timing correction

c) PLL

The reproduced signal enters the PLL circuit after the equalizer

The phase comparator compares the frequency and timing of the reproduced signal with those of the clock signal generated by the VCO, and feeds the error voltage back to the VCO. The VCO oscillates the 49.5 MHz clock in synchronization with the reproduced signal, and the clock is supplied to the data latch and DCI-P circuit.

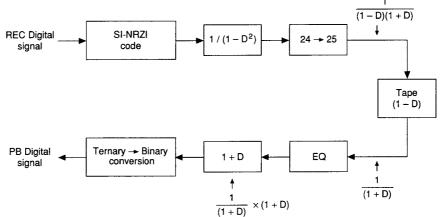


Fig. 8-3-1 (k)

(3) Recording signal delay circuit

(correction for high-speed auto tracking)

The IC231 MAIN board is a PLD IC which has been newly introduced in the DY-90 for the purpose of delaying recording data. Players since BR-D92/52 have been equipped with a high-speed auto tracking facility for a quicker start-up of the servo system than with the conventional auto-tracking system. Since the high-speed auto tracking facility is operated during playback, the DY-90 is not equipped with this facility as it is in principle, a recording unit. However, it is necessary to ensure a more accurate track pattern for properly operating the high speed auto tracking function during recording by controlling the recording position of the ITI signals.

The operating principle of the high-speed auto tracking system is explained below.

In Digital-S, the ITI signals are recorded at both ends and the center of one track. When the tracking centers are in alignment, the ITI output timing (T in the Fig. below) is equal between the leading and trailing ones of the paired heads.

Once the tracking centers are misaligned, the output timing becomes shifted. How much the tracking centers are misaligned is measured based on this timing shift to determine the tracking maximum. This allows reaching of the tracking maximum quicker than with the conventional hill-mounting control facility.

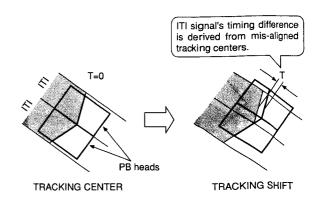


Fig. 8-3-1 (I)

ITI signal's timing difference is derived from mis-aligned tracking centers.

● PR-D92/52 high speed AT operating flow chart

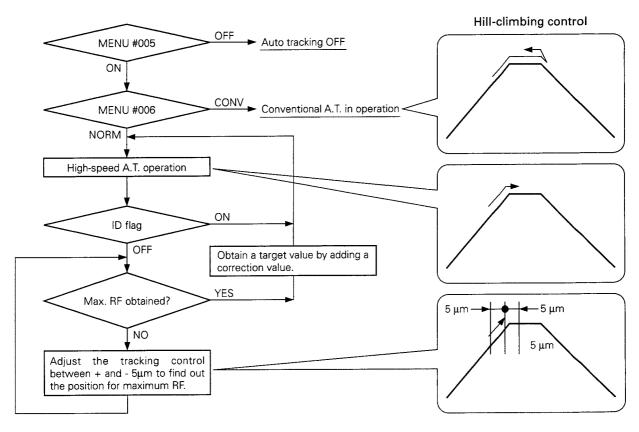


Fig. 8-3-1 (m) high speed AT operating flow chart

In order to correctly operate the high-speed auto tracking function, it is necessary to control the position of the ITI signals to be recorded on the tape. However, since there is a tolerance (T) in the mounting space between the paired recording heads, the actual recording position of the ITI signal on the tape is shifted from the set position.

While the BR-D92/52 has a facility for automatically measuring the tolerance at the head pair, the tolerance information (T) at the head pair is manually set with S201 in the DY-90. The ITI signal can be recorded in the correct position on the tape by delaying the recording timing on one of the heads.

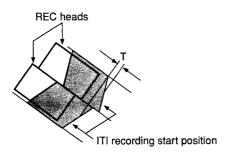
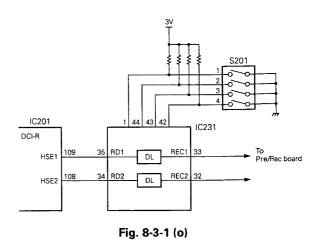


Fig. 8-3-1 (n)

DIP SW201 is connected to pins 1, 42, 43and 44 of IC231. S201 provides the setting of the mounting error information on the pair of recording heads. Based on this information, IC231 carries out an electrical correction to ensure that the recording of the ITI signal is in a correct position.



8-16

8.3.2 Audio Circuit

(1) Analog input system

The signal flow in the analog input system is shown in Fig. 8-3-2. (a) (b)

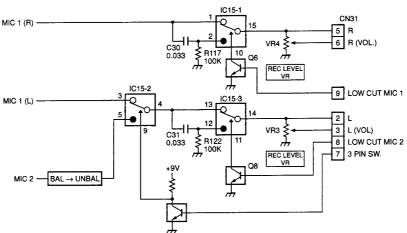


Fig. 8-3-2 (a) MIC input circuit on CP board (PAL model)

Primarily, the analog input system has two lines, MIC1 and MIC2. MIC1 is for a stereo -52 dBs unbalanced input which passes through the MT board into the CP board. MIC2 is for a monaural -60 dBs XLR-3 pin balanced input to be fed to the CP board. At the CP board, the input after undergoing balanced to unbalanced conversion is switched between the MIC1 L and MIC 2 channels by means of the 2C15-22 switch. This can be set by the MIC switch on the DY-90 side panel so that either one of MIC1 or MIC2 can be selected.

For the NTSC version, there are two channels of microphone input, MIC1 and MIC2. MIC1 is for a monaural -52 dB unbalanced input which is passed through the MT board to the CP board. It is then delivered to the Audio board. The REC LEVEL VR of MIC1 is not provided on the CP board but on the Audio board.

VR3 is the REC LEVEL VR for LINE input Audio-1 signal. MIC2 is provided for the monaural -60 dBs, balanced SLR-3-pin input signal which is fed to the CP board. It is delivered to the Audio board after balanced to unbalanced conversion. REC LEVEL VR of MIC2 is a VR4 which is provided on the CP board.

IC15-1 and IC15-3 are low-cut filter ON/OFF switches whose setting can be changed on the service menu. C30, R117, C31

and R122 are low-cut filters. A low-cut frequency of approximately 50 Hz is given by $f = \frac{1}{2\pi CR}$

The MIC signal then enters the AUDIO board, passes through the ALC/limiter circuit, and is then fed to the MAIN board where it is converted to a digital signal.

The line signal entered through the rear panel is directly fed to the AUDIO board and after passing through the MIC (-60 dBs)/LINE (+ 4 dBs) select circuit, likewise passes though the ALC/limiter circuit. See Fig. 8-2-2 (c) for operation of the ALC/limiter as this depends on the AUTO/MANUAL and MIC/LINE input settings.

	4.10	AUTO	ALC ON
LINE	+4dBs	MANUAL	ALC/LIMITER OFF
LINE	00 JD -	AUTO	ALC ON
	-60dBs	MANUAL	LIMITER ON
CAMERA		AUTO	ALC ON
		MANUAL	LIMITER ON

Fig. 8-3-2 (c)

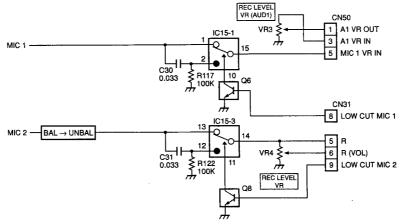


Fig. 8-3-2 (b) MIC input circuit on CP board (NTSC model)

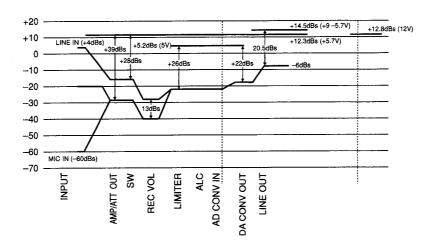


Fig. 8-3-2 (d) Signal levels in different circuits

(2) Limiter/ALC circuit

A significantly broad dynamic range is required for audio recording so that the limiter/ALC unit is definitely necessary when data is gathered from varying situations.

Limiter/ALC operation is accomplished by an electronic control called a VCA (Voltage Controlled Amplifier). The input audio signal is fed to the VCA to feed back the output signal; its signal level is first detected for conversion to a DC signal which then passes through the amplifier for controlling the VCA. (See Fig. 8-3-2 (e)). The difference between the ALC and the limiter is in their trigger levels: the limiter is triggered at the standard input (-60 dBs in case of MIC 2) plus + 19 dB. The ALC is triggered at the standard level and when it receives an audio input higher than the standard level, suppresses its audio level to the standard one. It does not raise the recording level if the input signal level is too low. (See Fig. 8-3-2 (f)).

Referring to the MIC circuit, IC303 and 304 form the VCA. The input signal is admitted through pin 7 and delivered from pin 9. It is then fed to pin 3 of IC309 (IC310) and goes out from pin 1. The VCA-controlled signal is again fed to pin 12 and goes out from pin 14 for level detection and rectification. While rectification is usually done with diodes, transistor rectification takes place here in this circuit. The rectified control voltage exits through the Q317 (Q318) emitter, passes

through the IC309 (IC310) amplifier and is fed to pin 8 of IC303 (IC304) for gain control.

The attack time and recovery time of the limiter/ALC are given below.

Attack time: Approx. 50 - 100 msec Recovery time: Approx. 4 sec.

Attack time refers to the length of time from entry of an excess signal to activation of the limiter/ALC and recovery time is the time taken for it to recover to the initial state.

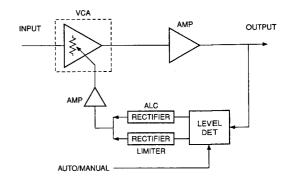


Fig.8-3-2 (e) Limiter/ALC circuit

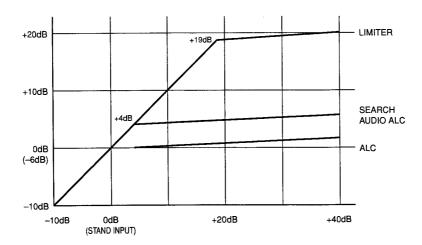


Fig.8-3-2 (f) Limiter/ALC operating characteristics

(3) A/D and D/A converter

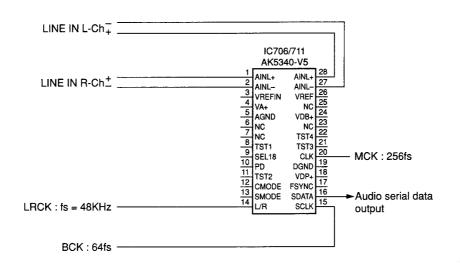
The audio signal after passing through the limiter/ALC enters the MAIN board and is subjected to A/D conversion at a sampling frequency of 48 kHz and a quantification bit number of 16. IC706 is the A/D converter for the LINE signal and IC711 for the MIC signal.

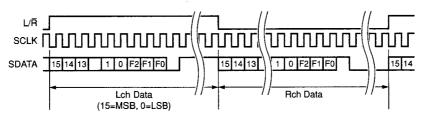
As indicated in Fig. 8-3-2 (e), L-ch. balanced signals are fed to pins 1 and 2 and R-ch balanced signals to pins 27 and 28. BCK (bit clocks) are fed to pin 15 at a frequency of 64 fs (fs = 48 kHz). Over-sampled data is converted to 16 bit data of 48 kHz (fs) by the digital filter in the IC. Over-sampling makes an ideal conversion performance possible regardless of input frequency and input amplitude. Clocks of 256 fs frequency are also supplied as master clocks.

A/D converted digital data is delivered from pin 16 as L/R-ch mixed serial signals. The L/R switching signal is fed to pin 14 so that L-ch data is delivered at "H" and R-ch data at "L" alternately. As serial data, 16-bit data and 3-bit flag bits are delivered sequentially from MSB.

IC712 is a D/A converter. The playback system, having only one D/A converter, is able to play back only 2 channels, so that serial data at the selected two of the four channels is fed to pin 2. As the clocks, LRCK: fs=48 kHz are fed to pin 7, bit clocks (BCK2: 65fs) to pin 3 and master clocks (MCK: 256 fs) to pin 5.

The data over-sampled in the IC is delivered from pin 13 (R-ch and pin 16 (L-ch) as analog output.





Serial data output

Fig. 8-3-2 (g) A/D converter

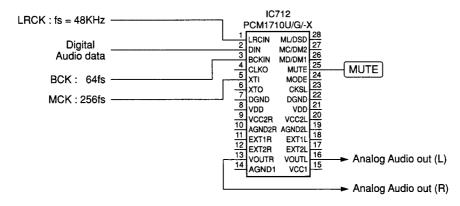


Fig. 8-3-2 (h) D/A converter

8.3.3. System Control & Servo System Circuit

(1) System Control

IC601 is an 8 bit microprocessor for controlling the VTR section. It serves to control the VTR's mechanical parts and servo systems. The functions of its terminals are given below.

IC602 is an IC for expansion which mainly converts the information from the mechanical parts to bus data for communication with IC601, IC603 is an EP ROM, while IC601 is an IC for address data latching.

PIN	IN/OUT	NAME	for address data latching. DESCRIPTION		
No.			EEPROM data		
1	IN/OUT	EEP1 DATA EEP1 CLOCK			
2	OUT		EEPROM clock		
3	IN	NTSC/PAL	NTSC/PAL conversion		
4	IN	PFP1			
5	IN	PFP0	Turking order 0		
6	<u>IN</u>	TRP2	Tracking pulse 2		
7	<u>IN</u>	TRP1	Tracking pulse 1		
8	IN	TRP0	Tracking pulse 0		
9	IN	POWER IN S/S	"H" with POWER ON		
10	OUT	SEL PF1/PF2	RF signal CH-!/CH-2 conversion		
11	BUS	WR	WR/RD control		
12	BUS	RD			
13	OUT	FULL ERASE	"H" in full-erase mode		
14	OUT	REEL BRAKE	Reel brake control		
15	OUT	REEL M BRAKE	Reel main brake control		
16	BUS	ASTB	Latch enable output		
17		VSS	GND		
18	BUS	A15			
19	BUS	A14			
20	BUS	A13			
21	BUS	A12	Address bus		
22	BUS	A11	Address bus		
23	BUS	A10			
24	BUS	A9			
25	BUS	A8			
26	BUS	A7/D7			
27	BUS	A6/D6			
28	BUS	A5/D5			
29	BUS	A4/D4	Data bus		
30	BUS	A3/D3			
31	BUS	A2/D2			
32	BUS	A1/D1			
33	BUS	A0/D0			
34	OUT	DRUM PWM	Drum PWM output		
35	OUT	CAP PWM	Capstan PWM output		
36	IN	VDD	Power +5V		
37	0.17	MODE	Not used (+5V)		
38	OUT	(P86)	Not used		
39		XT2			
40		VSS	GND		
41	IN	X2	Crystal 12 MHz (main clock)		
42	IN	X1 PST	Decet signal in a state of the		
43	OUT	M. MOTOR +	Reset signal input Mode motor control (FWD)		
45	OUT	M. MOTOR -	Mode motor control (FVVD) Mode motor control (REV)		
46	OUT	CFG-A PWM	PWM output (for CAP FG A BIAS) FG DUTY AUTO ADJ		
47	OUT	CFG-B PWM	PWM output (for CAP FG A BIAS) FG DUTY AUTO ADJ		
48					
48	OUT	REEL PWM	Reel motor PWM output		
50	OUT	LOAD PWM CAP FWD DET	Loading motor PWM output Capstan forward/reverse detection input "H" in FWD		
I 30	IIN	CAP FVVD DET	Capstan forward/reverse detection input in in FVVD		

PIN No.	IN/OUT	NAME	DESCRIPTION	
51	OUT	REC CTL-	REC CTL pulse output (-)	
52	OUT	HID P/DFF	HID pulse output	
53	IN	TEST MODE	Warning cancel (S601)	
54	OUT	OPE-L LATCH	Operation LED latch	
55	OUT	REC CTL +	REC CTL pulse output (+)	
56	IN	DPG/SPA P	Drum PG/SPA signal input	
57	IN	OPE COVER SW	Operation cover SW input	
58	OUT	OPE-L DATA	Operation LED data	
59	OUT	OPE-L CLK	Operation LED clock	
60	IN	NMI	N	
61	IN	_	Not used	
62	IN	SP REEL FG	D-150;+(0110011-)	
63	IN	TU REEL FG	Reel FG input (8 Hz -28 Hz)	
64	IN	CAP X2 FG	Capstan x 2 FG Input (NTSC: 3740 Hz, PAL: 3728 Hz, REC mode)	
65	IN	DRUM FG	Drum FG input (2100 Hz)	
66	IN	PB CTL	PB TL pulse input (NTSC): 30 Hz, PAL: 25 Hz, PLAY mode)	
67	IN	TSR/REF FLD	TSR input	
68	IN	BATT REMAIN	Battery remaining detection (A/D CONV IN)	
69	IN	KEY A	Operation key scan input (STOP, REW, FF, PLAY, EJECT)	
70	_	(ANI2)		
71	_	(ANI3)	Not used	
72		(ANI4)		
73	IN	DEW	DEW sensor input	
74	IN	CAP FG A	Capstan FG A input (NTSC: 1870 Hz, PAL: 1864 Hz, REC mode)	
75	IN	TAPE LED	Tape LED detection (normally 1V DC)	
76	IN	END SENS	End sensor detection ("H" when detecting)	
77	IN	BEGIN SENS	Begin sensor detection ("H" when detecting)	
78	IN	BATT REM	Battery data input (for Anton Bauer battery)	
79	IN	RF ENV1	RF signal input (leading head)	
80	IN IN	RF ENV2	RF signal input (lagging head)	
81	_	*******	Not used	
82	IN	DC12 IN	DC 12V IN (XLR 4P) detecting ("L" when detecting)	
83		AVDD	Power supply for A/D converter	
84		AVREF	Reference power for A/D converter	
85		AVSS	GND	
86			Not used	
87	IN	CAP FG-B	Capstan FG B input (NTSC: 1870 Hz, PAL: 1864 Hz)	
88	IN	FPS	Reference signal input (NTSC:15 Hz, PAL: 12.5 Hz)	
89	IN/OUT	JB CLK	Clock for AV microprocessor communications	
90	IN	VDD	+ 5V	
91	OUT	JB DATA OUT	Data for AV microprocessor communications	
92	IN	JB DATA IN		
93	OUT	POWER ON SW-REG	Servo switching regulator ON	
94	OUT	(P06)	TAPE LED drive	
95	OUT	CTL SW1	PB. CTL GAIN SW	
96	OUT	REEL FWD	Reel direction (FWD: "H")	
97	OUT	CAP FWD CTL	Capstan direction (FWD: "H")	
98	OUT	TAPE REV	Tape direction (REV: "H")	
99	OUT	SPA SEL	Drum PG/SPA switching signal	
100	OUT	SERVO REC	"L" when servo REC	

Table 8-3-3

(2) Recording Start-Stop operation

The timing signal during the editing point recording is different between TC Preset REC RUN mode and REGEN mode.

In REC RUN mode, a zero-frame edit pulse is recorded at the end of recording same as with GY-Y2/BR-S422. This is accomplished by changing the duty ratio of a CTL signal to mark an edit point. The T/C generator in REC mode then stops to advance two frames after the marking.

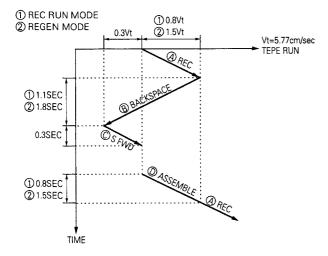
During the editing point recording, the zero-frame edit pulse is detected during assembly playback, whereupon recording and T/C data advancement starts two frames after the detected edit pulse. This enables you to do editing just at zero frame.

In case of REGEN mode, the record end point is stored in memory in the form of time code data. Editing point recording at zero frame is made possible by gen-locking the time code generator at PB time code data during assembly playback.

1) STANDARD SPECIFICATION

T/C GEN MODE	AEF SETUP TIME	EDITING ACCURACY	REFERENCE TIMING
① REC RUN MODE	0.8 SEC WITHIN	±0 FRAME	ZERO FLAME EDITING PULSE
② REGEN MODE	1.5 SEC WITHIN	±0 FRAME	TIME CODE DATA

2) BACKSPACE OPERATION



	A	B	0	0
T/C GEN	RUN	N STOP STOP		① STOP ② REGEN
SERVO	REC SEARCH		PB	REC-PLAY
VIDEO	REC	CUE REVIEW	E-E	① E-E ② PB
AUDIO	REC	SEARCH	E-E ① E-E ② PB	
TAPE DRIVE	FWD	REV(X2)	FWD	FWD
MECHA POSITION	FWD	FWD	FWD	FWD

Fig. 8-3-3 (a)

(3) Servo System

The block diagram of the drum, capstan and reel servo circuit is shown in Fig. 8-3-3(a). Each motor control unit consists of an MDA section and a switching regulator section. Q901to Q909 are switching regulators and IC901 is an IC for switching.

First referring to the reel system, the phase/speed control signal is delivered from pin 48 of IC601 as a PWM signal. It passes through the LPF and is fed to pin 6 of IC809 as a reel error signal. IC809 serves as an MDA IC for the reel which controls rpm with reel error voltage. It also includes a supply power control circuit, with its pin 3 for the voltage to be supplied to the motor (VM) and its pin 4 for the signal for controlling the supply voltage (VS).

Most of the power consumed by the IC's themselves is lost between the collectors and emitters of the output stage transistors. In the case of reel servo Q809 to Q811, the loss becomes higher as the voltage between C and E increases with a greater output current.

The voltage given by subtracting a voltage applied to the motor from the supply voltage is such a voltage between C and E. The lower the current, the lower is the voltage applied to the motor so that a greater voltage will be applied across C and E. Thus, in order to ensure an efficient use of power, it is necessary to vary the supply voltage (VM) depending on the output current, that is, the supply voltage should be suppressed for a low current output and increased for a higher current output. It is important to avoid applying an excess voltage to the section between C and E of the output stage transistors.

The power control facility (VS) pin 4 has been provided for this purpose. The power control signal (VS) is passed through the operator amplifier (IC902) and is fed to the switching IC (pin 17 and 18 of IC901. Based on this control signal, the power control signal (VS) is passed through the operation amplifier (IC902) and is fed to the switching IC (pin 17 and 18 of IC901). Based on this control information, the switching signal from pin 15 is supplied in the switching regulators Q901 to Q903, so as to supply the reel motor with power.

Likewise, for the drum servo, the phase/speed control signal is delivered from pin 34 of IC601 as a PWM signal. It passes through the LPF and is delivered from pin 5 of CN53 to the MDA board as a drum error signal to control the drum rotation. The power control signal (VS) is entered through pin 6 of CN53 and is fed to pins 5, 6 of the switching IC901. The switching signal from pin 8 is then supplied in the switching regulators Q907 to Q909 so as to control the motor power supply. The motor power (VM) is delivered through pin 7 of CN53 to the MDA board.

In the case of controlling the capstan motor, the phase/speed control signal is delivered from pin 35 of IC601 as a PWM signal and passes through the LPF to provide a capstan error voltage. In the case of the capstan servo, there is no VS signal from the MDA so that the capstan signal is fed to pins 12, 13 of IC901 as VS.

The switching signal from pin 10 controls the Q904 to Q906 switching regulators. The capstan VM power is delivered through pin 3 or CN50 to the capstan motor for directly controlling the motor.

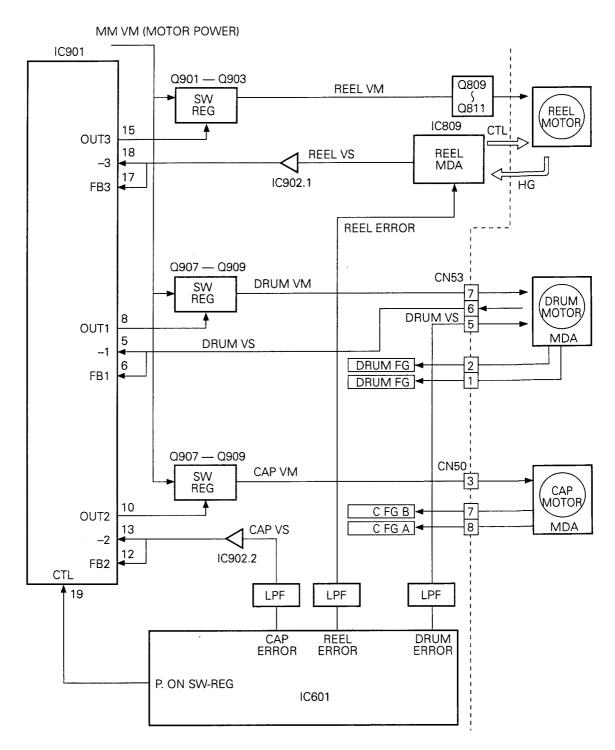


Fig. 8-3-3 (b) Servo circuit.

8.4 DY-90 Function Comparison List Classified by Destination

Some of the accessories functions and specifications for DY-90 differ depending on destination (country). Please refer to the list below for the details.

MODELNAME	DY-90E	DY-90 Japan domestic version	DY-90U	DY-90E (X) for China version	DY-90EC for China version	DY-90EC (K) for China version (Semi-knockdown)
BATTERY HOLDER	Anton-Bauer	BH-P27 type	BH-P27 type	BH-P27 type	BH-P27 type	BH-P27 type
COLOR FILTER	1 : 3200K 2 : 5600K+ 1/4ND 3 : 5600K 4 : 5600K+ 1/16ND	1 : 3200K 2 : 5600K+ 1/4ND 3 : 5600K 4 : 5600K+ 1/16ND	1:3200K 2:5600K 3:5600K+ 1/16ND 4:EFFECT (cross)	1:3200K 2:5600K+ 1/4ND 3:5600K 4:5600K+ 1/16ND	1 : 3200K 2 : 5600K+ 1/4ND 3 : 5600K 4 : 5600K+ 1/16ND	1:3200K 2:5600K+ 14ND 3:5600K 4:5600K+ 1/16ND
	Select by Menu	Select by Menu	4ch fixed	Select by Menu	Select by Menu	Select by Menu
4CH AUDIO SYSTEM	Stereo MIC REC available	Stereo MIC REC available	DA1 : AUD1 DA2 : MIC2 DA3 : AUD2 DA4 : MIC1	Stereo MIC REC available	Stereo MIC REC available	Stereo MIC REC available
			Stereo MIC REC not available			
Accessory List & packing	Mini MIC Tripod base Set up box	Mini MIC Tripod base Set up box	Mini MIC Tripod base Set up box	Mini MIC Tripod base Set up box	Mini MIC Tripod base Set up box MIC holder (KA-A90U) Shoulder strap	Mini MIC Tripod base Set up box MIC holder (KA-A90U) Shoulder strap VF-P116E MV-P615U
	Double carton (Refer to page 7-1)	Double carton (Refer to page 7-1)	Double carton (Refer to page 7-1)	Double carton (Refer to page 7-1)	With CB-P90U (Refer to page 7-2)	With CB-P90U (Refer to page 7-2)
Special setting (electrical)	None	None	None	Gamma: MAX Master black: +4 Color Matrix: different	Gamma: MAX Master black: +4 Color Matrix: different	Gamma : MAX Master black : +4 Color Matrix : different
CPboardS1-8 (DIP SW)	ON	OFF	ON	OFF	OFF	OFF

8.5 COMPATIBILITY CHART (for SERVICE)

(1) DY-90E Circuit Board Assembly Version Chart

Some early production models of DY-90E have circuit board assembly which are incompatible.

And software ROM version had been changed some times, too. So in this section, there are compatibility chart for board assembly and software version.

Please use following as a reference when servicing the applicable models.

DY-90E Board Assembly Version Chart Diagram

Serial NO. Board name	XXXX0021 and after	XXXX0271 and after
MAIN board	MAIN board SCK2534-E0A	
CP board	SCK2526-00A	SCK2326-P0B
IC3 on CP board (ROM ver.)	V1-00, V1-01	V1-02
IC4 on CP board (ROM ver.)	V1-00 V1	-01, -02, -03, -04, -05, -06, -07

There is compatibility between these circuit boards.

Fig. 8-4-2

NOTE:

- SCK25XX-XXX means, board assembly part number. (parts are mounted)
- IC3 (ROM) on CP board have software program for IC309 and IC310 (PLD IC) on MAIN board.
- IC4 (ROM) on CP board have software program for Camera control
- Serial number of this chart should be used only reference.
- The set which was product XXXX0271 and after, added some electrical adjustment ITEM for camera process. So please refer to Section 3. 3. 3. -7 Black adjustment 2 part.